

Frank E. Ritter

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Research interests

I am interested in using cognitive modeling within unified theories of cognition to improve human-computer interaction and to test theories of learning, interaction, and behavior moderators. These models are also useful for studying networks and helping users in a variety of systems including medical, consumer, and governmental applications including tutors and games. I have built several models that help explain how people learn and sets of tools to make model building, protocol analysis, and statistical analysis easier. I am also interested in developing stochastic learning and optimization algorithms to model behavior and to improve other analyses. We are currently applying many of these techniques to build tutors for medicine and maintenance, an iPhone app to help users moderate their caffeine use, and a long-term attempt to study and model the effects of stress on cognition.

Education

PhD, Carnegie-Mellon University, 1992 (AI & psychology program).
MS, Carnegie-Mellon University, 1989 (Psychology).
Part-time graduate course work, Brandeis University, 1986 (Computer Science).
Graduate course work, Yale University, 1983 to 1984 (Computer Science).
BSEE (cum laude), University of Illinois/Urbana, 1983 (Electrical Engineering).

Honors and awards

Lifetime achievement award, Behavior Representation in Modeling and Simulation (BRIMS) Society, July 2018.
College of IST nominee for President's Award for Student Engagement, October 2017.
Excellence in Outreach and Engagement Scholarship Award, College of IST, May 2017.
College of IST nominee for the [PSU] Howard B. Palmer Faculty Mentoring Award, September 2015, September 2016.
Faculty Marshall (student selected),
 Fall graduation 2014, College of Information Sciences and Technology;
 Fall graduation 2002, School of Information Sciences and Technology.
CaffeineZone (iPhone app) nominated, 2013 PA Tech Award.
Best Paper Award and Best Student Paper Award, *Behavior Representation in Modeling and Simulation (BRIMS) 2012 Conference* (Dancy, Ritter, & Berry, 2012).
Recommended Read, *Behavior Representation in Modeling and Simulation (BRIMS) 2012 Conference* (Zhao, Kaulakis, Morgan, Hiam, Ritter, & Morgan, 2012).
Evertsz, Ritter, Russell, & Shephardson (2007). Best Paper award, at the *16th Conference on Behavior Representation in Modeling and Simulation (BRIMS)*.

Fulbright Senior Scholar, Autumn 2005, Institute of Psychology, Technical University - Chemnitz, Germany.

Who's Who Among America's Teachers, 2004-2005.

St. Amant & Ritter (2004) selected as "Siegel-Wolf Award for Best Applied Modeling Paper" at the *International Conference on Cognitive Modeling*.

Avraamides & Ritter. (2002) selected by the Conference Program Committee for the "Recommended Reading List" at the *11th Conference on Computer-Generated Forces and Behavior Representation*.

European Science Foundation Research Programme "Learning in Humans and Machines", Junior Scientist Fellowship, 1995 to 1997.

ACM Doctoral Dissertation Award Nominee, 1993 competition.

Sigma Xi, inducted at Carnegie-Mellon University, 1991.

US Air Force Laboratory Fellowship, Fall 1988 to Spring 1992.

Department Fellowship, Carnegie-Mellon University, Fall 1987 to Summer 1988.

BBN Unendowed couch in the AI Labs, 1987.

National Science Foundation Fellowship Honorable Mention, 1983.

Eastman Kodak Employee Suggestion Plan, Monetary Award, 1983.

Eta Kappa Nu (electrical engineering honorary), University of Illinois Outstanding Senior, 1983.

Shorter Board (leadership honorary), University of Illinois, 1983.

Tau Beta Pi (engineering honorary), University of Illinois, 1982.

James Scholar (Honors program), University of Illinois, Fall 1979 to Spring 1983.

Kodak Scholar (and intern), Fall 1980 to Spring 1983.

Experience

At Penn State

Professor of Information Sciences and Technology, of Psychology, and of Computer Science and Engineering, since July 2009.

Associate Professor of Information Sciences and Technology, College of Information Sciences and Technology, the Pennsylvania State University, since October 1999. (Tenured July 1999 in IST.)

Engineering Systems Affiliate, College of Engineering, since October 2016.

Affiliate Faculty in the Department of Industrial and Manufacturing Engineering, May 2009-2012.

Associate Professor of Computer Science & Engineering, December 2001 to June 2009.

Member of Computer Science and Engineering Graduate Faculty, since May 2000.

Associate Professor of Psychology, October 1999 to June 2009.

Visitor, Charles River Analytics, Fall 2012 to Spring 2013.

ISCAS Visiting Scholar, Pen-based & Multimodal User Interface Research Group, Intelligence Engineering Lab, Institute of Software, Chinese Academy of Sciences (ISCAS), Beijing, 5-14 August, 2012.

Visitor, Computer Science Department, Tufts University, Spring 2006.

Visiting Professor, Institute of Psychology, Technical University - Chemnitz, Autumn 2005.

At the University of Nottingham

Lecturer (approximately equivalent to US assistant professor) Dept. of Psychology, U. of Nottingham, January 1993 to September 1999. Completed probationary period and new lecturers induction course (approximately equivalent to tenure in the US), Summer 1995.

Associate Lecturer (approximately equivalent to affiliated tenured US assistant professor), School of Computer Science and Information Technology, U. of Nottingham, June 1995 to September 1999.

Visiting distinguished professor, Psychology Department, U. of Chemnitz (Germany), Fall 1998.

Industry and Consulting Experience

Charles River Analytics, since June 2009.

US Soccer Federation / FIFA Soccer referee (level 8), 2002-2015.

Smart Information Flow Technologies (SIFT), July 2013 to March 2014.

Agent Oriented Software, since September 2012.

Bryant & Cantorna, consultant on legal case, 2011-2012.

Applied Systems Intelligence, Inc., June 2009.

RPI Sequential analysis DTO project, July 2007 to December 2007.

CMU DARPA BICA project, 2005-2006.

Soar Technology, 2000-2001.

BBN Labs, 1987.

Staff scientist, BBN Laboratories, Cambridge, MA, 1984 to 1987.

Created first SIMNET graphic display, created TRIO tutoring cognitive architecture.

Digital interface engineer, Kodak Research Labs, Rochester, NY (Summer 1981, 1983) and Harrow, England (Summer 1982).

Professional Activities

External committee work (selected)

Government service

Associate Investigator (IPA), Naval Submarine Medical Research Lab, Groton, CT, February 2012 to January 2013; April 2013 to March 2014; and July 2015 to June 2017.

Reviewer, Fiscal Year 2016 (FY16) Joint Program Committee 1 (JPC-1) Medical Simulation and Information Sciences (MSIS) Medical Decision Aids Research Program (DoD).

Attendee, FDA Public Workshop - Robotically-Assisted Surgical Devices: Challenges and Opportunities, July 27-28, 2015.

Named and funded "Team Mentor", HRED Lab's proposal (PI: Cassenti) to Cybernetics Investigation of Human-Technology Collaboration, Army Research Lab. June 2015.

Panel member, Crew Health Peer Review Panel, Human Research Program, NASA, March 2015.

German Aerospace Center (DLR), Institute of Flight Guidance, advisory board to A-PiMod Project, December 2013 to December 2016.

ARL HRED pre-IRB technical review, January 2009.

Committee on Human-System Design Support for Changing Technology, National Academy of Sciences' National Research Council (NRC). May 2005 to May 2007.

US/UK OOS Programme Agreement Workshop, 11/12 April 2006, participant.

Army Research Laboratory Technical Assessment Board (ARLTAB) at the National Academy of Sciences' National Research Council (NRC). Soldier Systems Panel, April 2004 to December 2006.

Participant, NSF Workshop on Human-Centered Computing, September 2006.
Participant, Air Force Investments in Computational Cognitive Process Modeling Working Group, Human Effectiveness Directorate, February 2005.
Member, NSF IGERT Analytic Meeting Panel, 2-3 June 2003.
Visiting reviewer, "Computational Analysis of Social and Organizational Systems (CASOS) Integrative Graduate Education and Research Traineeship (IGERT) NSF program at CMU, Spring 2003.

Editorial and leadership board memberships

Series editor, *Oxford Series on Cognitive Models and Architectures*, Oxford University Press, since June 2003 (also noted below).
Associate editor: *Human Factors*, since January 2015.
IEEE Transactions on Human-Machine Systems, since January 2013
IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans, January 2012 to December 2012.
CCF Transactions on Pervasive Computing and Interaction, since April 2018.
Action editor: *Cognitive Systems Research*, 2010 to 2014.
Editorial boards: *Journal of Interaction Science*, since June 2012.
Human Factors, September 2000 to December 2013.
Journal of Educational Psychology, April 2008 to October 2011.
AI and Simulation of Behaviour Quarterly, January 2003 to March 2009.
AI and Simulation of Behaviour Journal, February 2004 to January 2008.
Central Pennsylvania Chapter of the American Civil Liberties Union of Pennsylvania, since September 2000.
Governing board representative from Penn State, Human-Computer Interaction Consortium, August 2009 to June 2012; March 2014 to December 2014; January 2016 to February 2016 (acting).
Alumni Advisory Committee, Electrical and Computer Engineering Alumni Association University of Illinois, May 1984 to June 2004.
Governing board, Society for the Study of Artificial Intelligence and Simulation of Behaviour, February 1998 to November 2003.
Member, Alumni Board of Directors, Electrical and Computer Engineering Alumni Association University of Illinois, Fall 1982 to Spring 1983.

External reviewer

External examiner for the MSc in Knowledge Management Systems (KMS), RMCS, Cranfield University (UK). September 2002 to September 2005, extended to 2006.
External examiner for the BSc in Cognitive Science, U. of Hertfordshire, January 1997 to June 1999, extended to 2000.
University College London, HCI Unit review, 1999.

Proposal reviewer

Air Force Office of Scientific Research
Austrian National Science Foundation
Belgian Federal Public Planning Service
British Academy

Defense Threat Reduction Agency
Netherlands Organisation for Scientific Research
UK Economic and Social Research Council
UK Engineering and Physical Sciences Research Council
UK Joint Research Council's Human-Computer Interaction / Cognitive Science Initiative
Vienna Science and Technology Fund (WWTF)

Conference organizer

Co-chair, 14th International Conference on Cognitive Modeling, 2016.
Technical program co-chair, Human-Computer Interaction Consortium Workshop, 2011.
Technical program co-chair, Conference on Behavior Representation in Modeling and Simulation, 2009, 2010, 2011.
Founding co-chair, tutorial program, Cognitive Science Conference 1999. Co-chair, 2001, 2002, 2003, 2004.
Tutorial Chair, International Conference on Cognitive Modeling, 2004, 2006, 2007, 2009, 2010, 2012, 2013.
Co-chair, 2nd European Conference on Cognitive Modeling, 1998.
Chair, EuroSoar 7 Workshop, U. of Nottingham, 1993.

Program committees

Cognitive Science, 2017.
FIERCES ON BICA 2016, First International Early Research Career Enhancement School on Biologically Inspired Cognitive Architectures, April 2016.
Biologically Inspired Cognitive Architectures, 2015, 2017.
15th International Conference on Cognitive Modeling, 2017.
13th International Conference on Cognitive Modeling, 2015.
Program Committee Member for the Special Track on Cognitive Systems at the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15).
at the Twenty-Sixth AAAI Conference on Artificial Intelligence (AAAI-12).
Organizing committee, Integrated Cognition symposium, Fall 2013 AAAI Symposium. AAAI, 2011.
Biologically Inspired Cognitive Architectures (BICA), 2010.
12th International Conference on Cognitive Modeling, 2013.
11th International Conference on Cognitive Modeling, 2012.
Tenth International Cognitive Modeling Conference, 2010.
Ninth International Cognitive Modeling Conference, 2009.
Executive Committee, Conference on Behavior Representation in Modeling and Simulation, 2008, 2009, 2010, 2011, 2012.
Brain Informatics—BI 2010.
Associate Chair, CHI Notes, 2007.
Tutorial Program, Cognitive Science Conference, 2005, 2007, 2009.
Cognitive Science 1999, 2001, 2002, 2003, 2004, 2005.
IJCAI Modeling Natural Action Selection Workshop, July 2005.
6th German Workshop on Artificial Life, April 2004.
Information Resources Management Association 2004 Conference (reviewer).
Tutorials committee member for European Cognitive Science Conference, 2003.

Eighth International Cognitive Modeling Conference, 2007.
Seventh International Conference on Cognitive Modeling 2006.
Sixth International Conference on Cognitive Modeling, 2004.
Fifth International Cognitive Modeling Conference, 2003.
Fourth International Conference on Cognitive Modeling, July 2001.
Simulating Human Agents, AAAI Fall Symposium Series, 2000.
Third International Conference on Cognitive Modelling, 2000.
Postgraduate Workshop, AISB Convention 1999.
Human learning meets machine learning, Workshop at 10th European Conference on Machine Learning, 1998.
1st European Workshop on Cognitive Modeling, November 1996.
Interact'95.
CHI '94 Research Symposium.

Occasional editorial reviewer (books and journals)

Cambridge University Press
Jones and Bartlett
Lawrence Erlbaum
Oxford University Press (non-cognitive modeling books, trade books, book series, etc.)
Sage
Springer
Editorial Board for "Reviews in Human Factors & Ergonomics - Volume 9, "Human Performance in Teleoperations and Beyond. HFES/Sage, 2013.

Occasional editorial reviewer (journals and conferences)

ACM Transactions on Computer-Human Interaction
Adaptive Behavior
Advances in Cognitive Systems
AI and Simulation of Behaviour Journal
Behavior Representation in Modeling and Simulation Conference 2003, 2004, 2007, 2008, 2015.
Behavior Research Methods, Instruments, and Computers
Biologically Inspired Cognitive Architectures
CHI conferences 1996 to 2001, 2003 to 2006, 2008, 2012, 2016.
Cognitive Science Conference 1995 to 1997, 1999 to 2002, 2004.
Consultant to the Awards committee, 2017.
Cognitive Science
Cognitive Systems Research
Computational and Mathematical Organization Theory
Computers and Education
Computing Surveys
Current Psychology of Cognition
Encyclopedia of Information Science and Technology, Idea Group Publishing
European Journal of Cognitive Psychology
Human-Computer Interaction
Human Factors and Ergonomics Society Annual Conference, 2008.

IEEE Expert Special Track on Applications of Machine Learning
IEEE Intelligent Systems
IEEE Systems, Man, and Cybernetics: Part A, Systems and Humans
IEEE Transactions on Human-Machine Systems
IEEE Transactions on Learning Technologies
International Conference on Information Systems, 2009.
Interacting with Computers
International Joint Conference on AI (IJCAI), 2011.
International Journal of Artificial Intelligence in Education
International Journal of Human-Computer Studies
International Journal of Human Factors Modelling and Simulation (IJHFMS)
Journal of Artificial General Intelligence (JAGI)
Journal of Behavioral Decision Making Journal of Cognitive Psychology
Journal of Experimental Child Psychology
Journal of Experimental Psychology: Learning, Memory and Cognition
Journal of Virtual Culture
Learning & Instruction
Neural Computing & Applications
Software: Practice and Experience
Topics in Cognitive Science
User Modeling and User Adaptive Interfaces
Work & Stress

Other service (selected)

Mentor-mentee lunch commentator, BRIMS 2018.
Doctoral Consortium commentator, International Conference on Cognitive Modeling, 2003.
Tutor, AI & Simulation of Behaviour Post-Graduate Workshop, Spring 1994, 1995, 1996.
Invited participant, DRA Workshop on Integrated Performance Modelling, November 1995.

Committee work at Penn State University (selected)

Chair, Evaluation of IST 331, The user (now: Foundations for user-centered design), since Fall 2002.
Member, IST Graduate Advisory Committee, Fall 2007 to Spring 2009, Fall 2013 to Spring 2019.
(elected)

Member, Evaluation of IST 413, Usability Engineering, since Fall 2014.
Member, IST Promotion and Tenure Committee, Spring 2018 to Spring 2019. (appointed)

Graduate Council Subcommittee on New and Revise Programs and Courses, Fall 2017 to Spring 2018.
Graduate Council Joint Curricular Committee at the Graduate School, Fall 2017 to Spring 2018.
Chair, Evaluation of IST 331, The user (now: Foundations for user-centered design), since Fall 2002.
Member, IST Graduate Advisory Committee, Fall 2007 to Spring 2009, Fall 2013 to Spring 2019.
(elected)
Member, IST Promotion and Tenure Committee, Spring 2015 to Spring 2017. (elected)

Member, Academic Integrity Committee, ad hoc member, Fall 2016.
Member, Developmental committee of IST 505, Research Methods for the IST, since Fall 2015.

Member, Academic Integrity Committee, ad hoc member, Spring 2016.
Member, IST Research Seed Grant Review committee, Fall 2015, Fall 2016.

Member, University Graduate Council, Fall 2013 to Spring 2015. (elected)
Member, Graduate Council Committee on Programs and Courses, Fall 2013 to Spring 2015.
Member, Academic Integrity Committee, Fall 2013 to Spring 2014.
Member, Assessment Planning Committee, Spring 2012.
Chair (elected), Cognitive and Networked Intelligent Systems Scholarly Interest Group, March 2011 to June 2012.
June 2013 through June 2014.
Chair, Academic Integrity Committee, Fall 2011 to Spring 2012.
Judge, Human Factors Student Research Forum, 2011.
Member, Internal advisory committee for the Survey Research Center, a unit within the Social Science Research Institute, Penn State, Fall 2010 to Spring 2012.
Chair, Promotion and tenure committee, Fall 2010 to Spring 2011 (elected).
Member, IST Classroom Software Committee, Fall 2006 to Spring 2012.
Member, Graduate Council Committee on Academic Standards, Fall 2007 to May 2011.

Member, University Graduate Council, Fall 2007 to May 2011. (elected)
Chair, Faculty Search Committee, Fall 2009.

Member, Graduate Recruiting Committee, Fall 2007 to Spring 2009. (elected)
Member, University Hearing Board, January 2003 to August 2005, and August 2006 to August 2008.

Member, Select ad hoc Committee to Review Endowed Chairs Review Processes, Spring 2007.

Member, PhD Comprehensive Exam Committee, Spring 2007.
Member, Dean's review of John Bagby Committee (similar to HR40, post-tenure review), Spring 2007.
Member, Committee to evaluate IST web site and presence, Fall 2006 to Spring 2007.

Developer and chair, IST Classroom Software Committee, April 2004 to August 2005.
Member, Undergraduate Advisory Committee, September 2004 to August 2005. (elected)
Member, Publications Committee, Computer Science and Engineering, Fall 2002 to August 2005, and Fall 2006 to Spring 2010.

Member, Committee to develop Professional MSc IST, Spring 2000 to Spring 2004.
Director, IST Summer Undergraduate Research Fellowship Program, Summer 2000 to Summer 2004.

Co-chair, HCI Institute development committee, Fall 2000 to Spring 2003.
Member, Evaluation of IST 230, Discrete math, Fall 2002 to Spring 2004.

Solutions Institute Fellow, Spring 2001 to Spring 2002.
Member, Committee to evaluate IST web site and presence, Spring 2000 to Spring 2002.
Member, Faculty Advisory Evaluation Committee to the Dean, Spring 2002.

Symposium organizer: "At the Intersection of Arts & Technology", College of Arts and Architecture and School of Information Sciences and Technology, Fall 2001.

Chair, HCI faculty search, September 2001 to May 2002.

Co-chair, Detailed Design of IST Graduate Courses, 521, HCI topics, Spring 2001 to Spring 2002.

Member, Committee to develop MSc and Phd in IST, Spring 2000 to Spring 2002.

Member, IST Faculty Chair committee, Fall 2000 to Spring 2002.

Member and occasional chair, Promotion and tenure committee, Spring 2000 to Spring 2002.

Advisor, Dean's Student Advisory Committee, Spring 2000 to Spring 2001.

Chair, Committee to develop IST 331, The user, Fall 2000 to Spring 2001.

Member, IST Faculty search committee, Fall 1999, Spring 2000, Spring 2001.

Member, IST Minor Committee, Spring 2001.

Chair, Committee to develop IST 521, Theories of users in human-computer interaction, Fall 2000.

Member, Committee to develop IST 531, Human Information Behavior: Information and the User, Fall 2000.

Chair, Committee to develop IST 230, Logic, language, and discrete math for information science, 2000.

Chair, Tenure committee in IST, Spring 2000.

Committee work at the U. of Nottingham (selected)

Director of Studies, Masters in Intelligent Systems, February, 1999 to September 1999.

Web foreman, School of Psychology, January 1999 to September 1999.

Director, Institute for Applied Cognitive Science, August 1998 to September 1999.

HCI Studies Director for Psychology, IT MSc degree, ICL Institute of IT, U. of Nottingham, 1997 to 1999.

International Admissions Tutor, Dept. of Psychology, Spring 1994 to September 1999.

Occasional Student Examinations Officer, Spring 1995 to Spring 1999. (Equivalent to Director of studies for visiting and part-time students.)

Department Computing Sub-committee, Spring 1994 to September 1999.

Internal examiner, Diploma in Applied Psychology, Autumn, 1994 to September 1999.

Department representative, Cripps Computing Centre Users Advisory Committee, Spring 1995 to Spring 1999.

Professional and honorary society memberships (previous and current)

Association for Computing Machinery, 1990-2005.

Special interest group on computer-human interaction (SIGCHI)

American Association for Artificial Intelligence (AAAI)

Association for Psychological Science, 1992-2005.

Brain and Behavioral Sciences, Associate, since October, 2004.

British Psychological Society

Chartered Psychologist, since 1997.

Cognitive Science Society

Human Factors and Ergonomics Society

Institute of Electrical and Electronics Engineers, 1982-2005.

Computer Society

Systems, Man, and Cybernetics Society

League for Programming Freedom
Society of the Study of Artificial Intelligence and Simulation of Behavior (AISB)

Eta Kappa Nu (electrical engineering)
Phi Kappa Phi (scholastic)
Shorter Board (leadership)
Sigma Xi (research)
Tau Beta Pi (engineering)

Teaching and Advising

Primary modules taught, co-taught, or convened (organized). * indicates new courses developed.

At Penn State

IST 497: Readings in cognitive science
IST 413: Usability engineering
IST 331*: Organization and design of information systems: User and system principles (The User)
IST 402*: Emerging Technologies: Models of human behavior
IST 402*: Emerging Technologies: Computer tutors
IST 597*: Simulating human behavior
IST 597G*: Quantitative and Qualitative statistical methods for HCI and Cognitive Science
IST 597D: HCI models and theories (Guest lecture)
IST 594*: Symposium on Cognitive Modeling
IST 590*: Research Colloquium (Professional seminar version)
IST 521*: Human-Computer Interaction (graduate methods)
PSY 524: Cognitive Pro-seminar (one week or one half week of semester course, biannually)
IST 230*: Language, logic, and discrete math
IST 110: Introduction to information sciences and technology

At the University of Nottingham

(C8 is Psychology; G5 undergraduate computer science, and G6 graduate computer science)

C8 D OEO: Issues in ergonomics
C8 1 HBP*: Introduction to British psychology
C8 C XCE: People and computers in the workplace
C8 C DPC*: Programming cognitive models
C8 D EAI*: Exploring architectures for AI
G5 B UID: User interface design
G6 D IHF: Introduction to human factors
G6 D COG: Introduction to cognitive psychology
C8 C XAR: Cognitive architectures
C8 3 TUB*: Cognitive modelling
C8 C XES: Expert systems
C8 2 COG: Cognitive psychology
G6 D FAI: Foundations of AI
C8 1 IA A&B: Introduction to AI
C8 3 XPL: Lisp & cognitive modeling
Problem solving and visual cognition*, Second year tutorial
C8 2 MH A&B*: The keystroke level model

At CMU

Chairman and founder, *Interfacing the Science and the Profession* seminar series, Department of Psychology, CMU, 1991.

Current students

Farnaz Tehrani (CSE PhD expected 2019, co-supervised with Becky Passonneau)
Jacob Oury (IST PhD expected 2020)
Ryan Kaulakis (IST PhD expected 2018, co-advised with John Yen)
Jeremy Cole (IST PhD expect Fall 2018, committee member)

Previous students

Supervised PhD students

Changkun Zhao (IST PhD, March 2016)
Joe Dornisch (CSE MS, June 2013 to February 2015)
Chris Dancy (IST PhD, May 2014, co-advised with Mike McNeese)
Bill Stevenson (IST PhD, on leave to Apple)
Jaehyon Paik (IE PhD, August 2011)
Mark Cohen (IST PhD, December 2008)
Sue Kase (IST PhD, December 2008)
Jong Kim (Industrial Engineering PhD, co-advised with Richard Koubek, August 2008)
Roman Belavkin (CS PhD July 2003, co-supervised with David Elliman at Nottingham)
Gordon Baxter (Psy PhD December 2000, co-supervised by Fernand Gobet at Nottingham)
Gary Jones (Psy PhD 1998, co-supervised by David Wood)
David Golightly (Psy PhD 1999, co-supervised by David Gilmore)

Externally examined PhD students

Korey MacDougall (Carleton University, external examiner, Cognitive Science PhD exam, 2016).
Kam-Hung Kwok (Carleton University, external examiner, Cognitive Science PhD exam, 2015).
Arindam Das (York University, external examiner, Computer Science PhD exam, 2014)
Matthew Rutledge-Taylor (Carleton University, external examiner, Cognitive Science PhD, 2010)
Duncan Brumby (University of Wales/Cardiff, external examiner, HCI PhD, 2005)
Tossapon Boongeon (Cranfield University, external examiner, Intelligent Systems, PhD 2004)
Dan Allsopp (Cranfield University, external examiner, Intelligent Systems, PhD 2003)
Ed Butler (Nottingham University, internal examiner for Psychology, PhD May 1999 and June 2000)

Supervised MS and MSc students

Luke Metaxas (IST, IUG MS May 2018)
Jui-Te Tseng (CSE MS May 2014)
Razvan Orendovici (CSE MS, December 2011)
Robert Stark (IST MS, May 2010, co-supervised with John Yen)
Maik Friedrich (U. of Bamberg, CS MS May 2008, co-supervised with Prof. Dr. Ute Schmidt)
Urmila Kukreja (CSE MS, December 2004)
Kevin Tor (CSE MS, May 2004)

Doug Hogan (CSE MEng. May 2004, co-supervised with John Hannan)
Andrew Freed (CSE BS/MS Honors May 2003)
Atin Bansal (CSE MS, December 2002)
Peter Lonsdale (MSc in Intelligent Knowledge-Based Systems, 1999)
Rajinder Singh Rajoo (MSc in IKBS, 1997)
Jalal Rassouli (MSc in IKBS, 1995)
Roberto Ong (MSc in Intelligent Knowledge-Based Systems, 1994)

Visiting scholars and post-docs

Dr. Chung Il (Chad) Che (since August 2018)
Dr. Korey MacDougall (November 2016 to August 2018)
Dr. Miki Matsumuro (March, 2017, Nagoya University)
Sangeun Han (visiting information sciences student from Sungkyunkwan University, Korea, August 2016 to February 2017)
Dr. Dirk van Rooy (January 2016, fellowship from the Australian government)
Dr. Junya Morita, PhD (visiting professor from Japan Advanced Institute of Science and Technology, August 2010 to December 2010)
Dr. Jong Kim (August 2008 to August 2009)
Dr. Olivier Georgeon (March 2008 to July 2010)
Maik Friedrich (visiting CS student from the University of Bamberg, May 2007 to December 2007)
Dr. Lucio Inguscio (visiting scholar from Psychology, The University of Rome "La Sapienza", January to June 2004)
Dr. Dirk van Rooy (March 2001 to October 2002)
Emma Norling (visiting CS student from the University of Melbourne, March to June 2004)
Ellen Bass (visiting IE student from Georgia Tech. October 1994 to June 1995)

Previous MS and PhD committees

Moojan Ghafurian (IST PhD, December 2017)
Kiseok Sung (IE, PhD, August 2017)
Zach Beard (IST MS August 2016)
Dan Guzek (IST MS May 2015)
Kelly Sprehn (IE PhD committee, May 2014)
Vivek Kaushal (CSE MS committee, December 2013)
Jeonghwan Jin (IE PhD committee, May 2012)
Jennifer Bittner (Psychology PhD committee, awarded May 2011)
Maria Velazquez (IE PhD committee, awarded May 2011)
Shabnam Sodagari (EE PhD committee, September 2010)
Joshua Gross (IST PhD committee, May 2009)
Christina Kokini (Industrial Engineering, MS external reader, April 2009)
Georgios Christou (Tufts Computer Science, PhD committee, May 2007)
Damodar Bhandarkar (Industrial Engineering, PhD, August 2008)
Theodore Kinney (Psychology, PhD, March 2007)
Boyan Brodaric (GIS PhD Comprehensive exam committee, 2000-2004)

Dan Cassenti (Psy PhD committee member, PhD 2004)
Steve Jax (Psy Master's committee, MS 2001)
Marios Avraamides (Psy PhD committee, May 2002)

Undergraduate theses

Daniel Servich (senior IST thesis, December 2016)
Peter Gregory Plumb (senior IST thesis, December 2010)
Alex Wood (senior IST thesis May 2003)
Jason Cornwell (Psy BS honors thesis 2001)
5 Diplomas in Applied Psychology, 1994 to 1999.
3 Practicum visiting scholars from German CS Departments, 1994 to 1999

Other teaching activities

Guest lecture, IST 331 (2 section), “The Kegworth air disaster”, Spring 2018.
Guest lecture, IST 501 Interdisciplinary Research Methods for Information Sciences and Technology, Penn State, Fall 2016.
Guest lecture, ART405 Graphic Design Studio, Lock Haven University, Fall, 2016.
Seminars on Scientific writing and on HCI at TU/Chemnitz, Fall 2005.
Several lectures of “Introduction to Cognitive and Brain Science”, and a graduate seminar on cognitive science in Computer Science, Tufts University, Spring 2006.
Mentor, Women in Science and Engineering Research program, Spring 2000 to Spring 2012; since Spring 2015.
Mentor, Minority Undergraduate Research Experience, Spring 2000 to Spring 2012; since Spring 2015.

From reaction times to model testing: 21st International Summer School in Cognitive Science. Sophia, Bulgaria. July 2014

Practical aspects of experiments with human participants (conference tutorial, with Jon Morgan, Jong Kim, and Richard Carlson, some are noted below where there are publications):
MathPsych/ICCM2017, Cognitive Science 2014, BRIMS 2012, Cognitive Science 2012, Institute for Software, Chinese Academy of Sciences, 2012. *Allgemeine Psychologie und Arbeitspsychologie [General and Industrial Psychology group]*, TU-Chemnitz, July 2013.

The Psychological Soar Tutorial (with Richard M. Young): EuroSoar 7, 8, 9 Workshops, 1993 to 1995; AISB Spring Symposium Series, 1994, 1996; 1997; HCI '94; HCI International 1995; European Workshop on Cognitive Modeling, 1st (1996) and 2nd (1998); Cognitive Science Conference, 1999. Given as staff development, U. of Hertfordshire, 1998. Used by others to teach cognitive modelling in Australia, Japan, Scotland, and Bulgaria.
(with Tony Kalus and Richard Young) Fifth International Conference on Cognitive Modeling, 2003.

The Herbal High Level Behavior Representation Language Tutorial (with Mark Cohen and others):
Behavior Representation in Modeling and Simulation Conference 2005.
Dstl, Farnborough, June 2006. (including an introduction to ACT-R)

A summary of Human-System Integration in the System Development Process: (conference tutorial)
ICCM 2009.

Ritter, F. E. (October 2002). Artificial Intelligence: The wave of the future. Four lectures at the Institute for Learning in Retirement, Bradley University.

Presentations for Scholarship And Research Integrity graduate program at Penn State

Ritter, F. E. (2012). Some thoughts on steps in academia. Presentation, part of the SARI: Scholarship And Research Integrity training provided to Computer Science and Engineering graduate students, April 2012.

Ritter, F. E. (2011). Ethics and the publication process. Presentation, part of the SARI: Scholarship And Research Integrity training provided to Computer Science and Engineering graduate students, April, 2011, November 2011.

Ritter, F. E. (2010). A brief overview of some of the issues when running studies with people. Presentation, part of the SARI: Scholarship And Research Integrity training provided to Computer Science and Engineering graduate students, March 2010, October 2010.

Research Grants and Contracts

Lifetime total of over \$12,500 k as PI.

Agent Oriented Software (since October 2013). Licenses to 20 commercial copies of JACK and CoJACK, \$400k.

Office of Naval Research (April 2015 to September 2019). Maintenance training under uncertainty: Expanding a smart tutoring system to support acquisition and retention of skills. Ritter (PI), Yeh (Co-PI), with Charles River Analytics, \$3.4M. N00014-15-1-2275.

Office of Naval Research (May 2015 to October 2015; 2017 to 2019). CRAM-LESS: Exploring strategy learning in a diagnostic reasoning task. Ritter (PI), Yeh (Co-PI), STTR with Charles River Analytics, \$226k (phase 2).

Defense Health Program (JPC1) (September 2017 to September 2019). Virtual Intelligent Tutor for the Andragogy of Military Medicine Integrated Skills (VITAMMINS). With Charles River Analytics, prime. At PSU Ritter (PI), Garrison (Co-I), \$490k. W81XWH-15-DMRDP-MSIS-ATUMN.

US Army Natick Soldier Research, Development and Engineering Center (selected, June 2016, 2 years). DREEMS, behavioral modeling (with CRA), Army SBIR phase 2. ~\$167k to PSU, paired grants to Bucknell and CRA.

Harris Corporation, (awarded January 2018 to December 2020). Critical human-machine interaction in op centers: Optimizing for crisis assessment, operator performance and stress effects. Corporate contract. \$354k.

Office of Naval Research (2 years). Simulating training results to understanding differing effects of fidelity on learning (STRUDEL). \$226k

Naval Air Systems Command (April 2017 to October 2017). Support for SAVE-IT: A System for Analyzing and Visualizing Evaluations of Instruction Techniques. STTR phase 1. \$40k to PSU with CRA.

Air Force Research Lab (October 2015 to January 2018). Building trauma triage tutors for Air Force nurses and extending learning theory (STAT). SBIR phase 2 with Charles River Analytics, prime. At PSU Ritter (PI), Yeh (Co-PI), \$200k. FA8650-16-C-6680

Office of Naval Research (May 2015 to October 2015; 2017 to 2019). Active Transfer Learning for Intelligent Tutoring. Ritter (PI), Yeh (Co-PI), STTR Phase 1 with Charles River Analytics, \$30k (base) + \$25k (option, awarded May 2016).

Naval Submarine Medical Research Lab (February 2012 to January 2013; April 2013 to March 2014; July 2015 to June 2017). Interagency personal agreement. \$10k; \$30k; \$10k.

Air Force Research Lab through L3 (October 2014 to May 2015). Extending ACT-R/Phi to look at vigilance. Ritter (PI). \$35k.

Office of Naval Research to Charles River Analytics (March 2010 to June 2014). EasyCog SBIR Phase II. Ritter, PI, Haynes, Co-PI. \$320k awarded, with \$100k extension and \$80k extension.

DTRA (August 2009 to December 2012). Pathway-based integration of relational networks and textual information for detecting motivation and intent of WMD-related threats. Ritter, PI, Liu, Haynes, Horgan, Kreager, Mitra, Ivanova, Shemanski, & Hall, Co-PIs. \$1,047k.

Office of Naval Research. (October 2010 to September 2012). Expanding a smart tutoring system supporting acquisition and retention of skills. Ritter (PI). \$598k (\$40k+\$240k increments).

Charles River Analytics, Inc. (June 2011 to December 2011). STTR: Support for high-level tools for faster tutoring. Ritter (PI). Haynes and Yeh (Co-PIs). \$49.7k.

Office of Naval Research. (March 2010 to December 2010). A smart tutoring system supporting acquisition and retention of skills. Ritter (PI), Kim (named researcher). \$115k + 35k (\$150k total)

Office of Naval Research (January 2008 to September 2010). Linking UK Content Expertise with Computer-Based Analysis for Prediction of Individual and Group-Related Activities. Weiss, PI. Ritter (Subcontractor-CoPI). Approximately \$100k out of \$500k.

Office of Naval Research (August 2009 to July 2010). Interacting with a Massively Multiplayer Online Games (MMOGs) Environment using Herbal and SegMan. Ritter, PI. St. Amant (Subcontractor-CoPI). Approximately \$307k. (reduced to \$20k based on funding cuts)

Office of Naval Research. (June 2007 to December 2009). Establishing a novel training paradigm by investigating learning and forgetting of procedural skills. Ritter (PI), Koubek (Co-PI), Kim (named researcher). \$168k + 16k + 32k (\$216,000 total)

Office of Naval Research. (October 2005 to August 2009). Real world behavioral modeling with the Herbal high-level language. Ritter (PI), Haynes (Co-PI). \$769k.

Office of Naval Research. (October 2005 to September 2008). Model and study of threatening tasks and fatigue. Ritter (PI), Klein (Co-PI). \$380k.

UK MoD. (May 2003 to March 2008). Improving the representation of human variability within computer generated forces. PI: Agent Oriented Software Limited. Initial 2 year total to PSU of \$59k, plus \$2.5k + \$40k + \$250k extensions.

DMSO. (2004). Human Performance in Modeling and Simulation. PI: Agent Oriented Software. \$46k.

Office of Naval Research. (January 2003 to December 2005). Integrated explanation and visualization for intelligent synthetic forces. Jones, R. M., & Taylor, G. (PIs), with Ritter and Haynes (sub-contract). \$667k, with \$181k to PSU.

Office of Naval Research. (January 2003 to September 2005). Designing, building, and testing behavioral moderators with the ACT-R cognitive architecture. Ritter (PI), Klein (Co-PI). \$541k.

Naval Air Warfare Center (2002). Dynamic task allocation. Dr. J. Wise (PI for ARL), Ritter (Co-PI). Naval Air Warfare Center Aircraft Division. \$25k.

Lucent Foundation Funding (2002). Niche search engine for mobile search. Giles (PI), Ritter (Co-PI). \$50k.

Office of Naval Research. (November 2001 to May 2005). An architectural overlay: Modifying an architecture to help cognitive models understand and explain themselves. Ritter (PI), Haynes (Co-PI). \$228k.

DARPA. (May 2001 to September 2002). Using cognitive models to examine human-robot interfaces: An exploratory study. Ritter (PI). \$198k.

Office of Naval Research. (March 2001 to September 2001). Designing behavioral moderators for cognitive architectures. Ritter (PI), Quigley, McNeese, and Klein (Co-PIs). \$74.9k.

Office of Naval Research (January 2001 to September 2001). Testing an interface to explain cognitive models to experts. Ritter (PI). \$32k.

DERA. (April 2000 to September 2000). Tasks toward supporting realistic synthetic forces behaviour representation. Ritter (PI). £11.5k.

DERA. Techniques for modelling human performance in synthetic environments accepted as: A detailed review of approaches that might be used to model human behaviour predominantly, although not exclusively, in a military context. (1999). Ritter (PI) with Shadbolt, Elliman, Young, and Gobet (Co-PIs). £19.9k.

DRA. Computer support for rapid decision making using Soar. (June 1994 to June 1997). Gilmore and Ritter (joint-PIs). £176k.

JCI Diagrammatic reasoning grant (January 1993 to June 1994). Ritter and Bibby (joint PIs). Approximately £200k.

US Air Force Laboratory Fellowship, Fall 1988 to Spring 1992. US\$ 129k.

Other Support (selected)

- PSU internal (seed) funds from the College of IST (2018). Creating a disaster tutor. \$7.2k+\$1k. Ritter & Glantz.
- PSU internal funds from the Huck Institute of Life Science, the Engineering Design Program, the College of IST, the Applied Cognitive Science Lab (Spring 2016). [Designing and building a biosafety device]. \$15.5k. Ritter, Bilén, Miller, & Kirimanjesswara. This also uses/augments student projects in IST 413 and EDSGN 548.
- National Science Foundation (2016). Reitter, D., (PI) & Ritter, F. E. Support for ICCM 2016 International Conference on Cognitive Modeling. \$15.5k.
- U. of Nebraska Medical Center (September 2013 to May 2014). Optimal Training Model for Skills Learning and Retention in Telemedicine (NASA NSBRI stage I, NASA Nebraska Space Grant). \$0k (advisor/consultant). Joseph Siu (UNMC), PI.
- Schreyer Institute, Penn State. (August 2012 to May 2013). Development of an active learning workbook for teaching user experience design. \$9k. Erika Poole (PI), Frank Ritter (Co-PI).
- NSF Teragrid. (2008). Visualizing the parameter space of a serial subtraction cognitive model. 30,000 units of supercomputer time. Sue Kase, Co-PI. (estimate \$1/unit) NSF Teragrid. (2007). Optimizing the fitting of a serial subtraction cognitive model. 10,000 units of supercomputer time. Extended to 30,000 units. Sue Kase, Co-PI. (estimate \$1/unit)
- ARL (May 2003 to May 2005). Optimizing the fit of cognitive models using genetic algorithms. CRADA for 2,500 hours of supercomputer time. (estimate \$10/unit)
- The Office of Undergraduate Education, Summer Session Enhancement Fund. (Summer 2002). Support for two students in Summer Undergraduate Research Fellowship program. \$3k.
- ONR travel grant. (January 2002). To attend ONR Contractors meeting on Cognitive Architectures. Orlando, FL. \$1.1k.
- US Air Force Warfighter Research Lab travel grant. (January 2002). To attend ACT-R Workshop. Mesa, AZ. \$1.1k.
- DARPA/NSF travel grant. (September 2001). To attend DARPA/NSF Study on Human-Robot Interaction, San Luis Obispo, CA. \$1.1k.
- Penn State Fund for Excellence in Learning and Teaching (FELT). (July 2001 to July 2002). Java-based teaching of mathematics in information sciences and technology. \$3.2k.
- DARPA. (December 2000). To attend DARPA Workshop on Human-Robot Interaction, Washington, DC. \$1.1k.
- Lockheed/Martin. (2000). with Joe Lambert. Research in advanced human-computer interaction: Future applications of cognitive models. \$7k.
- KPN Research (NL). (June to September 2000). Building a Sim-eye and Sim-hand in Visual Basic. \$5.6k.
- Soar Technology. (March 2000). Human-computer interface issues. \$3.1k.
- President's fund for Undergraduate Research (Penn State). (January 2000). with Amanda Spink. How people search the web. \$2k.
- Lockheed/Martin. (1999). with Joe Lambert. Research in advanced human-computer interaction: Future applications of cognitive models. \$5k.
- Defence Science and Technology Organisation (DSTO, Australia). (January 1999). with Prof. Shadbolt. Cognitive modelling requirements for operational research simulations. \$AUS 10k.
- Engineering and Physical Science Research Council (EPSRC); US Army Research, Development, and Standardization Group (UK); and US Air Force European Office of Aerospace Research and

Development. (March 1993). with Prof. Young, to support the 2nd European Conference on Cognitive Modelling. \$7.3k.

Enterprise in Higher Education grant to develop the Soar Tutorial (April 1995 to April 1997). £2k.

US Office of Naval Research/Europe (1996) with Gary Jones for Jones to travel to cognitive modelling sites in the US and attend summer schools on cognitive modelling. US \$1.1k.

Social and Economic Research Council. (1993). Support for the EuroSoar7 workshop. £800.

Royal Society travel grant, (1993). £200.

Publications

Drafts of most papers are available at acs.ist.psu.edu/papers/.

Book series

Series editor, *Oxford Series on Cognitive Models and Architectures*, Oxford University Press, since June 2003. 10 books published (Tani, Sun, Gratch & Marcella, Conte, Eliasmith, Salvucci & Taatgen, Bach, Anderson, Ritter et al., Gray), 3 book(s) in press (Thagard treatise), 3 book(s) under contract, and 1 book(s) under review or in process.

Series editor, *Proceedings of the International Conference on Cognitive Modeling*, since 2016. The ACS Lab at Penn State publishes the books by applying ISBN numbers to the proceedings, and helping with proceedings layout and distribution.

Books

- B7 Reitter, D., & Ritter, F. E. (2016). *Proceedings of ICCM 2016, 14th International Conference on Cognitive Modeling (ICCM 2016)*. 284 pages. University Park, PA: Penn State.
<http://acs.ist.psu.edu/iccm2016/proc/>
- B6 Ritter, F. E., Baxter, G. D., & Churchill, E. F. (2014). *Foundations for designing user-centered systems: What system designers need to know about people*. 442 + xxx pages. London: Springer Science+Business Media. Foreword by Barry Boehm.
- B6b Published in Chinese by researchers at the Chinese Academy of Sciences, Dr. Feng Tian, and Prof. Xiaolong Zhang, head translators, as 以用户为中心的系统设计 (2017), 287 + xxxiii pages. Beijing: China Machine Press. Foreword by Prof. Guozhong Dai.
ISBN 978-7-111-57939-7
- B5 Ritter, F. E., Kim, J. W., Morgan, J. H., & Carlson, R. A. (2013). *Running behavioral studies with human participants: A practical guide*. Thousand Oaks, CA: Sage.
- B4 Ritter, F. E., Nerb, J., O'Shea, T., & Lehtinen, E. (Eds.) (2007). *In order to learn: How the sequence of topics influence learning*. New York, NY: Oxford University Press.
- B3 Ritter, F. E. [member], Committee on Human-System Design Support for Changing Technology. (2007). *Human-system integration in the system development process: A new look*. Richard W. Pew and Anne S. Mavor (eds.). National Research Council, National Academy Press. Washington, DC.
- B2 Ritter, F. E., Shadbolt, N. R., Elliman, D., Young, R., Gobet, F., & Baxter, G. D. (2003). *Techniques for modeling human performance in synthetic environments: A supplementary review*. Wright-Patterson Air Force Base, OH: Human Systems Information Analysis Center.
- B1 Ritter, F. E., & Young, R. M. (Eds.). (1998). *Proceedings of the Second European Conference on Cognitive Modelling*. Thrumpton (UK): Nottingham University Press.

Special issues

- SI5 Reitter, D., & Ritter, F. E. (2017). Introduction to the issue on Computational Models of Memory: Selected papers from the International Conference on Cognitive Modeling. *Topics in Cognitive Science*. 9(1). 48-50.
- SI4 Ritter, F. E., Kennedy, W. G., Best, B. J. (2013). The best papers from BRIMS 2011: models [sic] of users and teams interacting. *Computational Mathematical and Organizational Theory*. 19(3). 283-287.
- SI3 Kennedy, W. G., Ritter, F. E., Best, B. J. (2011). Behavioral representation in modeling and simulation: Introduction to CMOT special issue—BRiMS 2010. *Computational and Mathematical Organization Theory*. 17, 225-228.

- S12 Kennedy, W. G., Ritter, F. E., Best, B. J. (2010). The best papers from BRIMS 2009: Cultural and group models. *Computational and Mathematical Organization Theory*. 16(3). 217-219.
- S11 Ritter, F. E., & Young, R. M. (2001). Embodied models as simulated users: Introduction to this special issue on using cognitive models to improve interface design. *International Journal of Human-Computer Studies*, 55, 1-14.

Refereed journal and scholarly articles

- J46 Bolkhovsky, J., Ritter, F. E., Chon, K. H., & Qin, M. (2018). Performance trends during sleep deprivation. *Aerospace Medicine and Human Performance*, 89(7), 626-633(628).
- J45 Kase, S., Ritter, F. E., Bennett, J. M., Klein, L. C., & Schoelles, M. (2017). Fitting a model to behavior reveals what changes cognitively when under stress and with caffeine. *Biologically Inspired Cognitive Architectures*. 22. 1-9
- J44 Dancy, C. L., & Ritter, F. E. (2017). IGT-Open: An open source, computerized version of the Iowa Gambling Task. *Behavioral Research Methods*. 49(3). 972-978.
- J43 Paik, J., & Ritter, F. E. (2016). Evaluating a range of learning schedules: Hybrid training schedules may be as good or better than distributed practice for some tasks. *Ergonomics*. 59(2). 276-290.
- J42 Siu, K., Best, B. J., Kim, J. W., Oleynikov, D., & Ritter, F. E. (2016). Adaptive virtual reality training to optimize military medical skills acquisition and sustainment. *Military Medicine*. 181(5), 214-220.
- J41 Dancy, C. L., Ritter, F. E., Berry, K., & Klein, L. C. (2015). Using a cognitive architecture with a physiological substrate to represent effects of psychological stress on cognition. *Computational and Mathematical Organization Theory*. 21(1), 90-114.
- J40 Paik, J., Kim, J. W., Ritter, F. E., Reitter, D. (2015). Predicting user performance and learning in human-computer interaction with the Herbal compiler. *ACM Transactions on Computer-Human Interaction*. 22(5). Article No. 25.
- J39 Zhao, C., Kaulakis, R., Morgan, J. H., Hiam, J. W., Ritter, F. E., Sanford, J., & Morgan, G. P. (2015). Building social networks out of cognitive blocks: Factors of interest in agent-based socio-cognitive simulations. *Computational and Mathematical Organization Theory*, 21(2), 115-149.
- J38 Kim, J. W., & Ritter, F. E. (2015). Learning, forgetting, and relearning for keystroke- and mouse-driven tasks: Relearning is important. *Human-Computer Interaction*. 30(1). 1-33.
- J37 Klein, L. C., Whetzel, C. A., Bennett, J. M., Ritter, F. E., Nater, U., & Schoelles, M. (2014). Caffeine administration does not alter salivary alpha-amylase activity in young male daily caffeine consumers. *BMC Research Notes*. 7:30 (13 January 2014) [6 pages].
- J36 Zhao, C., Morgan, J. H., & Ritter, F. E. (2013). Understanding human high-level spatial memory: An ACT-R model to integrate multi-level spatial cues and strategies. *Biologically Inspired Cognitive Architectures*, 3, 1-5.
- J35 Morgan, J. H., Cheng, C.-Y., Pike, C., & Ritter, F. E. (2013). A design, tests, and considerations for improving keystroke and mouse loggers. *Interacting with Computers*. 25(3), 242-258.
- J34 Kim, J. W., Ritter, F. E., & Koubek, R. J. (2013). An integrated theory for improved skill acquisition and retention in the three stages of learning. *Theoretical Issues in Ergonomics Science*. 14(1), 22-37.
- J33 Cohen, M. A., Ritter, F. E., & Haynes, S. R. (2012). Discovering and analyzing usability dimensions of concern. *ACM Transactions on Computer-Human Interaction*. 19(2). Article 9. 18 pages.

- J32 Ritter, F. E., Bittner, J. L., Kase, S. E., Evertsz, R., Pedrotti, M., & Busetta, P. (2012). CoJACK: A high-level cognitive architecture with demonstrations of moderators, variability, and implications for situation awareness. *Biologically Inspired Cognitive Architectures*. 1(1). 2-13.
- J31 Georgeon, O. L., & Ritter, F. E. (2012). Intrinsically-motivated schema mechanism to model and simulate emergent cognition. *Cognitive Systems Research*. 15-16(May-June), 73-92.
- J30 Georgeon, O. L., Mille, A., Bellet, T., Mathern, B., Ritter, F. E. (2012). Supporting activity modeling from activity traces. *Expert Systems*. 29(3). 261-275.
- J29 Christou, G., Ritter, F. E., & Jacob, R. J. K. (2012). CODEIN—A new notation for GOMS to handle evaluations of reality based interaction style interfaces. *International Journal of Human-Computer Interaction*. 28(3). 189-201.
- J28 Qiu, B., Ivanova, K., Yen, J., Liu, P., & Ritter, F. E. (2011). Event-driven modeling of social networks. *International Journal of Social Computing and Cyber-Physical Systems*. 1(1). 13-32.
- J27 Baumann, M., Krems, J. F., Ritter, F. E. (2010). Learning from examples does not prevent order effects in belief updating. *Thinking & Reasoning*. 16(2). 98-130.
- J26 Morgan, J. H., Morgan, G. P., & Ritter, F. E. (2010). A preliminary model of participation for small groups. *Computational and Mathematical Organizational Theory*. 16: 246-270.
- J25 Klein, L. C., Bennett, J. M., Whetzel, C. A., Granger, D. A., & Ritter, F. E. (2010). Caffeine and stress alter salivary α -Amylase levels in young men. *Human Psychopharmacology: Clinical and Experimental*. 25, 359-367.
- J24 Yeh, K.-C., Gregory, J. P., & Ritter, F. E. (2010). One Laptop per Child: Polishing up the XO Laptop user experience. *Ergonomics in Design*. 18(3). 8-13.
- J23 Cohen, M. A., Ritter, F. E., & Haynes, S. R. (2010). Applying software engineering to agent development. *AI Magazine*, 31(2), 25-44.
- J22 Ritter, F. E. (2009). Two cognitive modeling frontiers: Emotions and usability. *Journal of Japanese AI Research*. 24(2). 241-249.
- J21 Ritter, F. E. (2009). 認知モデリングける二つのフロンティア。感情とユーザビリティ (Two cognitive modeling frontiers: Emotions and usability). 認知科学におけるモデルベースアプローチ」 (*Transactions of the Japanese Society for Artificial Intelligence*). 24(2). 245-252. Translated into Japanese by Junya Morita.
- J20 Haynes, S. R., Cohen, M. A., Ritter, F. E. (2009). Design patterns for explaining intelligent systems. *International Journal of Human-Computer Studies*. 67(1). 99-110.
- J19 Ritter, F. E., & Bibby, P. A. (2008). Modeling how, when, and what learning happens in a simple fault-finding task. *Cognitive Science*, 32, 862-892.
- J18 Ritter, F. E., Kukreja, U., & St. Amant, R. (2007). Including a model of visual processing with a cognitive architecture to model a simple teleoperation task. *Journal of Cognitive Engineering and Decision Making*. 1(2). 121-147.
- J17 St. Amant, R., Horton, T. E., & Ritter, F. E. (2007). Model-based evaluation of expert cell phone menu interaction. *ACM Transactions on Computer-Human Interaction*, 14(1), Article 1 (May 2007), 24 pages.
- J16 Kukreja, U., Stevenson, W. E., & Ritter, F. E. (2006). RUI—Recording User Input from interfaces under Windows and Mac OS X. *Behavior Research Methods*. 38(4). 656–659.
- J15 Ritter, F. E., Van Rooy, D., St. Amant, R., & Simpson, K. (2006). Providing user models direct access to interfaces: An exploratory study of a simple interface with implications for HRI and HCI. *IEEE Transactions on Systems, Man, and Cybernetics, Part A: Systems and Humans*. 36(3). 592-601.
- J14 Ritter, F. E., Freed, A., & Haskett, O. (2005). User information needs: The case of university department web sites. *ACM interactions*. 12(5). 19-27.

- J13 St. Amant, R., Freed, A. R., & Ritter, F. E. (2005). Specifying ACT-R models of user interaction with a GOMS language. *Cognitive Systems Research*, 6(1), 71-88.
- J12 Ritter, F. E., & Wood, A. B. (2005). Dismal: A spreadsheet for sequential data analysis and HCI experimentation. *Behavior Research Methods*, 37(1), 71-81.
- J11 Ritter, F. E. (2004). Choosing and getting started with a cognitive architecture to test and use human-machine interfaces. *MMI-Interaktiv-Journal's* special issue on Modeling and Simulation in HMS. 7. 17-37. [in English, abstract in German] useworld.net/mmij/musimms
- J10 Cheyne, T., & Ritter, F. E. (2001). Targeting respondents on the Internet successfully and responsibly. *Communications of the ACM*, 44(4), 94-98.
- J9 Ritter, F. E., Baxter, G. D., Jones, G., & Young, R. M. (2000). Supporting cognitive models as users. *ACM Transactions on Computer-Human Interaction*, 7(2), 141-173.
- J8 Jones, G., Ritter, F. E., & Wood, D. J. (2000). Using a cognitive architecture to examine what develops. *Psychological Science*, 11(2), 93-100.
- J7 Kuk, G., Arnold, M., & Ritter, F. E. (1999). Using event history analysis to model the impact of workload on an air traffic tactical controller's operations. *Ergonomics*, 42(9), 1133-1148.
- J6 Nerb, J., Ritter, F. E., & Krems, J. (1999). Knowledge level learning and the power law: A Soar model of skill acquisition in scheduling. *Kognitionswissenschaft [Journal of the German Cognitive Science Society] Special issue on cognitive modelling and cognitive architectures*, 8(1), D. Wallach & H. A. Simon (eds.). 20-29.
- J5 Delaney, P. F., Reder, L. M., Staszewski, J. J., & Ritter, F. E. (1998). The strategy specific nature of improvement: The power law applies by strategy within task. *Psychological Science*. 9(1). 1-8.
- J4 Bass, E. J., Baxter, G. D., & Ritter, F. E. (1995). Creating models to control simulations: A generic approach. *AI and Simulation of Behaviour Quarterly*, 93, 18-25.
- J3 Ritter, F. E., & Major, N. P. (1995). Useful mechanisms for developing simulations for cognitive models. *AI and Simulation of Behaviour Quarterly*, 91(Spring), 7-18.
- J2 Ritter, F. E., & Larkin, J. H. (1994). Developing process models as summaries of HCI action sequences. *Human-Computer Interaction*, 9(3), 345-383.
- J1 Reder, L. M., & Ritter, F. E. (1992). What determines initial feeling of knowing? Familiarity with question terms, not with the answer. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 18(3), 435-451. (This paper was also reviewed in the Dutch paper *NRC Handelsbad*, similar to the *Wall Street Journal*, in August 1992.)

Papers submitted, under revision, or in preparation (selected)

- Ritter, F. E., Yan, Y., Yeh, M., Siu, K.-C., & Oleynikov, D. (submitted August 2018). Effects of varied surgical simulation training.
- Friedrich, M., & Ritter, F. E. (under revision). Understanding strategy differences in a diagrammatic reasoning task.

Encyclopedia and handbook chapters

- E5 Ritter, F. E., Baxter, G. D., Kim, J. W., & Srinivasamurthy, S. (2013). Learning and retention. In J. D. Lee & A. Kirlik (Eds.), *The Oxford Handbook of Cognitive Engineering* (pp. 125-142). New York, NY: Oxford.
- E4 Kase, S. E., & Ritter, F. E. (2005). The gender factor in computer anxiety: Perspectives in IT. *Encyclopedia of Information Science and Technology*. Hershey, PA: Idea Publishers. 1257-1265.

Also published as: Kase, S. E., & Ritter, F. E. (2009). The gender factor in computer anxiety: Perspectives in IT. *Encyclopedia of Information Science and Technology 2nd ed.*. Hershey, PA: Idea Publishers. 1612-1620.

- E3 Jones, G., & Ritter, F. E. (2003). Production systems and rule-based inference. In L. Nadel (Ed.), *Encyclopedia of cognitive science*. vol. 3, 741-747. London: Nature Publishing Group. [A031.pdf]
- E2 Ritter, F. E. (2003). Soar. In L. Nadel (Ed.), *Encyclopedia of cognitive science*. vol. 4, 60-65. London: Nature Publishing Group. [A006.pdf]
- E1 Ritter, F. E., & Schooler, L. J. (2001). The learning curve. In *International encyclopedia of the social and behavioral sciences*. 8602-8605. Amsterdam: Pergamon.

Book chapters

- BC17 Ritter, F. E. (2017). Foreword. In: Tani, J. (2017). *Exploring robotic minds: Actions, symbols, and consciousness as self-organizing dynamic phenomena*. ix-xi. New York, NY: Oxford University Press.
- BC16 Ritter, F. E. (2014). Semester projects on human-computer interaction as service and outreach. In Carroll, J. M. (ed.) *Innovative practices in teaching information sciences*, 133-142. London: Springer.
- BC15 Ritter, F. E. (2014). Foreword. In Conte, R., Andrighetto, G., & Campenni, M. (Eds.). *Minding norms: Mechanisms and dynamics of social order in agent societies*. New York, NY: Oxford University Press. ix-x. New York, NY: Oxford University Press.
- BC14 Fang, Q., Liu, P., Yen, J., H., M. J., Shemanski, D. R., & Ritter, F. (2011). Analyzing intelligence on WMD attacks using threaded event-based simulation. In *Critical Infrastructure Protection V: 5th IFIP WG 11.10 International Conference on Critical Infrastructure Protection, ICCIP 2011 Hanover, NH, USA, March 23-25, 2011 Revised Selected Papers*, 201-216.
- BC13 Ritter, F. E., Schoelles, M. J., Quigley, K. S., Klein, L. C. (2011). Determining the number of simulation runs: Treating simulations as theories by not sampling their behavior. In S. Narayanan & L. Rothrock (eds.) *Human-in-the-loop simulations: Methods and practice*. London: Springer.
- BC12 Ritter, F. E. (2009). Foreword. In Bach, J. *Principles of synthetic intelligence: Building blocks for an architecture of motivated cognition*. v-vi. New York, NY: Oxford University Press.
- BC11 Ritter, F. E., & Nerb, J. (2007). Call to order: How sequence effects in humans and artificial systems illuminate each other. In F. E. Ritter, J. Nerb, T. O'Shea, & E. Lehtinen (Eds.), *In order to learn: How the sequences of topics affect learning*. 3-15. New York, NY. Oxford University Press.
- BC10 Nerb, J., Ritter, F. E., & Langley, P. (2007). Rules of order: Process models of human learning. In F. E. Ritter, J. Nerb, T. O'Shea, & E. Lehtinen (Eds.), *In order to learn: How the sequences of topics affect learning*. 57-69. Oxford University Press.
- BC9 Ritter, F. E., Lehtinen, E., & Nerb, J. (2007). Getting things in order: Collecting and analysing data on learning. In F. E. Ritter, J. Nerb, T. O'Shea, & E. Lehtinen (Eds.), *In order to learn: How the sequences of topics affect learning*. 81-92. Oxford University Press.
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- C8 Nichols, S., & Ritter, F. E. (1995). Theoretically motivated tool for automatically generating command aliases. *Proceedings of CHI '95*. 393-400.

- C7 Ong, R., & Ritter, F. E. (1995). Mechanisms for routinely tying cognitive models to interactive simulations. In *HCI International '95*. Osaka, Japan: July 1995.
- C6 Ritter, F. E., Lochun, S., Bibby, P. A., & Marshall, S. (1994). Dismal: A free spreadsheet for sequential data analysis and HCI experimentation. In A. Trapp & N. Hammond (Eds.), *Computers in Psychology '94*, 62-63. York (UK): CTI Centre for Psychology, U. of York. Reprinted in *Psychology Software News*, 5(2) (November 1994), Computers in Teaching Initiative Centre for Psychology, U. of York. pp. 57-58.
- C5 Nerb, J., Krems, J., & Ritter, F. E. (1993). Rule learning and the powerlaw: A computational model and empirical results. In *Proceedings of the Fifteenth Annual Conference of the Cognitive Science Society* 765-770. Hillsdale, NJ: Erlbaum.
- C4 Ritter, F. E. (1993) Using a cognitive architecture to add to protocol theory. Abstract included in the *Proceedings of the III European Congress of Psychology*, Tampere, Finland, July 1993. Also presented as colloquia at Queen Mary and Westfield College (U. of London), and the U. of Regensburg, Germany, July 1993.
- C3 Ritter, F. E. (1993) Creating a prototype environment for testing process models with protocol data. In the *Proceedings of the InterCHI Research Symposium*, Amsterdam, April 1993.
- C2 Ritter, F. E. (1991). Towards fair comparisons of connectionist algorithms through automatically generated parameter sets. In *Proceedings of the Thirteenth Annual Conference of the Cognitive Science Society*. 877-881. Hillsdale, NJ: Erlbaum
- C1 Davis, L. W., & Ritter, F. (1987). Schedule optimization with probabilistic search. *Proceedings of the Third Conference on Artificial Intelligence Applications*. IEEE Computer Society. 231-236.

Invited talks and keynote presentations

- K21 Ritter, F. E. (2018). Some Futures for Cognitive Modeling and Architectures. *SBP-BRIMS Conference*, July 2018, Washington, DC.
- K20 Ritter, F. E. (2016). An overview of cognitive modeling. *First International Early Research Career Enhancement School on Biologically Inspired Cognitive Architectures (FIERCES on BICA)*. Moscow, RF.
- K19 Ritter, F. E. (2015). The need for high level compilers for generating low level behaviors. In *Biologically Inspired Cognitive Architectures*. IOS Press: Amsterdam. [one of nine invited talks]
- K18 Ritter, F. E. (2013). State of the art in cognitive modeling. Presentation at the NSF Workshop on Cognitive Science. *International Joint Conference on Neural Networks*. Dallas, TX.
- K15 Ritter, F. E. (2012). Overview of 2007 NRC Study on HSI in the systems engineering development process, and some resources, recent extensions, and tools. Invited talk (other invited talk with David Woods from OSU). *Human Systems Division Workshop, NDIA Human Systems Division*. National Defense Industry Association. 11 September 2012.
Also given in the Wright Patterson AFB, Human Effectiveness Directorate, 711 HPW Chief Scientist's Office Guest Lecture Series, 7 December 2012.
Also given as a keynote talk at the Northrop Grumman Information Systems' Modeling & Simulation Community of Practice event, 7 November 2013.
- K14 Ritter, F. E. (2012). Using behavior representation models in risk-driven design. Plenary talk. *Behavior Representation in Modeling and Simulation Conference*. 12-BRIMS-002, 4-5.
- K13 Ritter, F. E. (2011). Diversions and Resources, Tri-service Cognitive Modeling Challenge Project meeting, keynote presentation, Aberdeen Proving Ground, 5 December 2011.
- K12 Ritter, F. E., Dancy, C., & Berry, K. (2011). The case for including physiology in cognitive modeling. In *Biologically Inspired Cognitive Architectures*, 303. IOS Press: Amsterdam. [one of seven invited talks]

- K11 Ritter, F. E., Paik, J., & Kim, J. W. (2010). A learning model of a long, non-iterative spreadsheet task. Cognitive Science Distinguished Lecture. Carleton University, 1 October 2010. (the other distinguished lecturer that year was Chomsky.)
- K10 Ritter, F. E. (2010). Behavioral Models for Serious Games: State of the Art and Challenges. Effective risk communication for the IED threat. Human Factors/Behavioral Sciences Division, Science & Technology Directorate, Department of Homeland Security.
- K9 Ritter, F. E., Kase, S. E., Klein, L. C., Bennett, J., & Schoelles, M. (2009). Fitting a model to behavior tells us what changes cognitively when under stress and with caffeine. In *Proceedings of the Biologically Inspired Cognitive Architectures Symposium at the AAAI Fall Symposium. Keynote presentation*, Technical Report FS-09-01. 109-115. AAAI Press: Menlo Park, CA.
- K8 Ritter, F. E., & Bibby, P. (2004). Modeling how and when learning happens in a diagrammatic reasoning task. ONR / NSF / DARPA Symposium on Reasoning and Learning in Cognitive Systems, CSLI, Stanford, March 20-21, 2004. (invited)
- K7 Ritter, F. E. (2002). An introduction to cognitive modeling and knowledge management. Royal Military College of Science, U. of Cranfield, November, 2002 (Inaugural lecture for the Knowledge Management Systems degree programme).
- K6 Ritter, F. E., Avraamides, M. N., Councill, I., Rooy, D. V., Quigley, K. S., Klein, L. C., McNeese, M. D., Stine, M. M., & Rodrigues, I. M. (2002). Pre-task appraisal and caffeine: An architectural overlay for ACT-R. Air Force Workshop on ACT-R Models of Human-System Interaction, Mesa, AZ, January 2002. www.dtic.mil/AFRL/afri.html
ONR Cognitive Architectures Workshop, January 2002.
- K5 Ritter, F. E. (1999). Frontiers of cognitive modelling: Emotions! Symposium Cognitive Modelling, Department of Cognitive Science and Engineering, in collaboration with the Centre for Behavioral and Cognitive Neurosciences, University of Groningen (The Netherlands). 25 June 1999.
- K4 Ritter, F. E., & Young, R. M. (1997). Invited lectures and practicals on Soar, German Autumn School in Cognitive Science, 18-22 September 1997.
- K3 Ritter, F. E. (1997). An approach for routinely including interaction in cognitive architectures. Invited presenter, ONR Hybrid Architectures Meeting, Corvallis, OR, August 12-13, 1997.
- K2 Ritter, F. E. (1995). Empirical constraints and cognitive modelling. Invited talk presented at "The Turing-Hypothesis revisited: New perspectives on Architectures of Cognition" Symposium at the Zentrum fuer Kognitive Studien, U. of Potsdam and the Einstein-Forum.
- K1 Ritter, F. E. (1985). ICAI Systems: TRIO and Quest at BBN. Invited presentation to the New England Computer Institute.

Published reviews and reports (selected)

- R23 MacDougal, K. & Ritter, F. E. (2018). Generative models as a third paradigm for decision making: A response to Markman. *Journal of Applied Research in Memory and Cognition*. 7. 26–28.
- R22 Ritter, F. E., & Reitter, D. (2016). Introduction to ICCM 2016. In *Proceedings of ICCM, 14th International Conference on Cognitive Modeling (ICCM 2016)*. ix. University Park, PA: Penn State.
- R21 Baxter, G., Churchill, E. F., & Ritter, F. E. (2014). Addressing the fundamental error of design using the ABCS. *AIS SIGHCI Newsletter*, 13(1), 9-10.
- R20 Ritter, F. E., & Nerb, J. (2008). #836. In Order to Learn: How the Sequences of Topics Affect Learning. *Tomorrow's Professor eMail Newsletter*. January 14, 2008.
- R19 Stevenson, W., & Ritter, F. (2006). Review of "BBN's earliest days: founding a culture of engineering creativity, Beranek L. IEEE Annals of the History of Computing 27(2): 6-14, 2005." *ACM Computing Reviews*, 48(4). 227. #:CR132842

- R19 Inguscio, L., & Ritter, F. E. (2005). Applied Cognitive Science Laboratory at the Pennsylvania State University (Laboratory Notes). *Cognitive Processing: International Quarterly of Cognitive Science*. 6(2). 142-146. [refereed].
- R18 Ritter, F. E. (2005). Review of "Boyd: The fighter pilot who changed the art of war". *The Military Psychologist, The Official Newsletter of Division 19 of the APA*. 21(2). 21.
- R16 Ritter, F. E., & Councill, I. G. (2002). A review of the Twenty-Second Soar Workshop. *AI Magazine*, 23(3), 107-109.
- R15 Mudgett, D. R., Freed, A. R., & Ritter, F. E. (2002). Web-based resources for teaching discrete mathematics to students of information sciences and technology. *IEEE Learning Technology*, 4(3). 9-10. ltaf.ieee.org/learn_tech/issues/july2002/index.html#3
- R14 Baxter, G. D., & Ritter, F. E. (2002). A review of "A multidisciplinary approach to human-machine systems development: Cognitive engineering in the aviation domain" edited by Nadine B. Sarter and Rene Amalberti. *Contemporary Psychology: APA Review of Books*, 47(4), 362-364. (invited)
- R13 Ritter, F. E. (2001). Review of the Third International Cognitive Modelling Conference. *Cognitive Systems Research*, 1(4), 251-252.
- R11 Ritter, F. E. (2000). Review of the Third International Cognitive Modelling Conference. *AI and Simulation of Behaviour Quarterly*. 104. p. 8
- R10 Ritter, F. E., & Young, R. M. (1999). Report on the AISB'99 Workshop on "Issues in Teaching Cognitive Science to Undergraduates". *AI and Simulation of Behaviour Quarterly*, 102, 7-8.
- R9 Young, R. M., & Ritter, F. E. (1999). Report on the Second European Conference on Cognitive Modelling. *AI and Simulation of Behaviour Quarterly*, 101, 10-11.
- R8 Ritter, F. (1997). WWW presentation of overheads & exercises. *CTI Psychology Software News*. 7(2). 46.
- R5 Arnold, M., Kuk, G., & Ritter, F. E. (1995). MacSHAPA review. *CTI Psychology Software News*, 6(1). 18-20.
- R4 Ritter, F. E. (1995). Review of "Soar: An architecture in perspective". *Philosophical Psychology*, 8(3), 301-305.
- R2 Reder, L. M., & Ritter, F. E. (1988). Feeling of knowing and strategy selection for solving arithmetic problems. *Bulletin of the Psychonomic Society*, 26(6), 495-496.
- R1 Ritter, F. E. (1987). Symbolics product review. *Technology and Learning*, 1(2). Invited product review [mispublished as a letter to the editor!].

Manuals, published software, and online resources (selected)

- M20 Hiam, J. W., Ritter, F. E., & Morgan, J. H. (2012). Declarative to Procedural Manual. ACS Tech Report 2012-1.
- M19 Ritter, F. E., & Yeh, K-C. (since 2010). CaffeineZone, an application for iPhone-like devices, available through the iTunes store. <http://itunes.apple.com/us/app/caffeine-zone-2/id484682583?ls=1&mt=8>, Paid and free versions. Revised since 2010. Over 99.1k downloads, and extensive (more than 30) print, video, broadcast TV, and *Congressional Record* press.
- M18 Cohen, M. A. & Ritter, F. E. (2004). Herbal Tutorial. (Tech. Report No. 2004-2). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/cohenR04.pdf.
- M17 Councill, I. G., Morgan, G. P., & Ritter, F. E. (2004). dTank: A competitive environment for distributed agents (Tech. Report No. 2004-1). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/acs-lab/reports/councillMR04.pdf.

- M16 Ritter, F. E. & Shiskowski, N. (2002). *The ACT-R FAQ*, acs.ist.psu.edu/act-r-faq. Updated since 2006-2015 with Jong Kim.
- M15 Ritter, F. E., Wood, A., et al. (2001). The Dismal Spreadsheet. Part of the GNU Emacs Distribution at www.gnu.org/software/dismal/ Also available from numerous archives.
- M13 Ritter, F. E. & Young, R. M. (1994, last revision March 2003 with Tony Kalus). Psychological Soar Tutorial. Computer programs and overheads. Available at acs.ist.psu.edu/nottingham/pst-ftp.html.
- M12 Baxter, G. D., & Ritter, F. E. (1995). *The Soar FAQ*, acs.ist.psu.edu/soar-faq. Updated semi-annually, from 1999 to 2002 with Alex Wood. Updated currently with Jong Kim. Awarded a "Key Resource Award" viewable at www.links2go.com/award/Soar.
- M10 Ritter, F. E. (1992). Multiple forms-mode. Available from The Ohio State University elisp archives on archive.cis.ohio-state.edu as file `pub/gnu/emacs/elisp-archive/modes/multi-forms-mode.1.4.tar.Z` (last checked 1998).
- M5 Bates, D., Kademan, E., & Ritter, F. E. (Fall 1990, last revised with my help Fall 1991). S-mode for GNU Emacs. Available from the Statlib software archive (S is a statistics package, Statlib is statlib@lib.stat.cmu.edu). Now part of the ESS (Emacs speaks statistics) package.
- M3 Panagos, J., Feurzeig, W., & Ritter, F. (1987). TRIO System Documentation (Tech. Rep.) 6547. BBN Laboratories.
- M2 Ritter, F., & Panagos, J. (1987). TRIO User's Handbook (Tech. Rep.) 6206. BBN Laboratories.
- M1 Ritter, F., & Panagos, J. (1986). The Yale Loop package: A clause based loop written in Common Lisp. Available from CL-Utilities-request@cs.cmu.edu, or via anonymous FTP from [ftp.cs.cmu.edu](ftp://ftp.cs.cmu.edu) as file `/afs/cs/user/mkant/Public/Lisp/code/iter/loop/yloop/yloop.cl` and 12 mirror sites (last checked August 1998).

Technical reports and videos (selected)

- TR56 Yeh, K.-C., Ritter, F. E., & Voller, K. (2013). Notes on second test of the MTT (review of D2P/CLS Tutor-DEMO 12/17/2012). Technical Report No. ACS 2013-1.
- TR52 Ritter, F. E. (2013). Technical Review of the Declarative to Procedural Tutor for Combat Lifesaving (review of D2P/CLS Tutor-DEMO 12/17/2012): Technical Report No. ACS 2013-1. ACS Lab, College of IST, Penn State.
- TR47 Yeh, K.-C., & Ritter, F. E. (2012). An initial evaluation of the D2P/MTT, a computer-based, Declarative to Procedural (D2P) theory driven moving target tutor. (Tech. Report 2012-1). Applied Cognitive Science Lab, College of Information Sciences and Technology, Penn State.
- TR46 Sanford, J. P., & Ritter, F. E. (2011). *Minimally invasive surgery simulator—Testing motor skill acquisition* (Technical Note No. ACS 2011-3). Applied Cognitive Science Lab, College of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/sanfordR11.pdf.
- TR44 Hiam, J., Zhao, C., & Ritter, F. E. (2011). *VIPER: A text-based environment for intelligent agents*. Applied Cognitive Science Lab, College of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/hiamZR11.pdf.
- TR42 Ritter, F. E., Kim, J. W., Morgan, J. H. (2009). Running behavioral experiments with human participants: A practical guide. (Tech. Report No. 2009-1). Applied Cognitive Science Lab, College of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/ritterKM09.pdf.
- TR34 Ritter, F. E., Bennett, J., & Klein, L. C. (2006). Serial subtraction performance in the cycling study (Tech. Report No. ACS 2006-1). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/ritterBK06.pdf

- TR33 Evertsz, R., & Ritter, F. (2006). D17: Situation Awareness Conceptual Model Version 1.0. Improved Human Behaviour Representation Project No: RT/COM/3/006. Date issued: 2006-05-18.
- TR32 Ritter, F. E., Reifers, A. L., & Schoelles, M. J. (2005). Defining testable theories of pre-task appraisal stress (Tech. Report No. ACS 2005-2). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/ritterRKS05.pdf
- TR31 Evertsz, R., Ritter, F. E., & Russell, S. (2005). HPMS–Rules of Engagement Simulation Project Final Report 1.0 (Contract No. FA8650-04-C-6440). Agent Oriented Software, Inc.
- TR30 Ritter, F. E., Ceballos, R., Reifers, A. L., Klein, L. C. (2005). Measuring the effect of dental work as a stressor on cognition (Tech. Report No. ACS 2005-1). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/reports/ritterCRK05.pdf
- TR25 Norling, E., & Ritter, F. E. (2004). COJACK Software Spec. Agent Oriented Software Limited.
- TR23 Norling, E., & Ritter, F. E. (2004). Situational awareness in COJACK. (No. RT/COM/3/006-D5). Agent Oriented Software Limited.
- TR22 Ritter, F., & Norling, E. (2003, revised May 2004). The causal relationship between behavior moderators and entity behaviour (No. RT/COM/3/006-D3). Agent Oriented Software Limited.
- TR21 Ritter, F. E. (2003). Using cognitive models to examine human-robot interfaces: An exploratory study. Final report. N66001-01-1-8916.
- TR19 Sherry, R. R., & Ritter, F. E. (2002). Dynamic task allocation: Issues for implementing adaptive intelligent automation (Tech. Report No. No. 2002-2). Applied Cognitive Science Lab, School of Information Sciences and Technology, Penn State. acs.ist.psu.edu/acs-lab/reports/sherryR02.pdf.
- TR12 Baxter, G. D., & Ritter, F. E. (1996). Designing abstract visual perceptual and motor action capabilities for use by cognitive models (Tech. Report No. 36). ESRC CREDIT, Psychology, U. of Nottingham.
- TR10 Lehman, J., Newell, P., Altmann, E., Ritter, F., McGinnis, T. (1994). The Soar introduction video (11 min.). The Soar Group, School of Computer Science, Carnegie-Mellon University.
- TR9 Ritter, F. E. (ed.) (1993). *Proceedings of the EuroSoar 7 Workshop*, U. of Nottingham, November 1993.
- TR8 Ritter, F. E. (1992). *Unified Theories of Cognition: One and one-quarter years later* (Tech. Rep.) CMU-CS-92-007.2. School of Computer Science, Carnegie-Mellon University.
- TR7 Ritter, F. E. (1992). TBPA: A methodology and software environment for testing process models' sequential predictions with protocols. Doctoral dissertation, Carnegie-Mellon University. Also available as School of Computer Science Tech report CMU-CS-93-101.
- TR5 Ritter, F. E. (1991). How the Soar interface uses Garnet. Video (2 min.) shown at the Garnet user interface development environment special interest subgroup meeting at the 1991 Human Factors in Computing Systems Conference (CHI'91).
- TR4 Ritter, F. E. (April, 1991). The Developmental Soar Interface. Video (27 min.) presented to the CMU Soar Research Group. Available online. Shown partially at BRIMS 2011 as a video response to a talk given as a video.
- TR3 Ritter, F. (1987). OREO: Orienting electrical circuits for qualitative reasoning, (Tech. Rep.) #6560. BBN Laboratories.

Service talks (selected)

- Ritter, F. E. (2018). Overview of PhD programs. Graduate School Information Session, College of IST. 18 April 2018.

- Ritter, F. E. (2016). Overview of State College and graduate school, IST PhD Welcome Week, August 2016.
- Ritter, F. E. (2016). ACT-R tutorial, Mini-ACT-R workshop, ACS Lab and Linguistics, Penn State. 25 March 2016.
- Ritter, F. E. (May 2015). Commentator, Final project presentation, *CS598 Cognitive Engineering*, Computer Science, U. of Illinois at Urbana-Champaign.
- Ritter, F. E. (2010). Lessons from reading 400 CVs, presentation to IST 590: IST Professional seminar, April 2010.
- Ritter, F. E. (2010). A brief overview of some of the issues when running studies with people. Presentation part of the SARI: Scholarship And Research Integrity training provided to Computer Science and Engineering graduate students, March 2010, October 2010.
- Ritter, F. E. (2007). Academic CVs, research project relationships, and interdisciplinary research. Office of Sponsored Programs Staff development series.
- Ritter, F. E., & Kase, S. (2006). Gaming environments: How they get you to play and keep you playing. Talk presented to the “Gaming for girls: Digital storytelling and so much more” summer camp for middle school girls in Centre County.
Also, in 2007, to Action Potential Science Experience, Create Your Own Virtual Adventure. (a summer camp for middle school students at Penn State)
- Ritter, F. E. (2005). Cognitive models. Talk presented to Chi Psi, psychology honorary society.
- Ritter, F. E. (2005). Human error or system error?, talk presented to students at the Governor's School on Information Technology, July, 2000; July 2001; July 2003; July 2004; July 2005.
- Ritter, F. E. (2003). A new relationship between copyright, trade secrets, and freedom of speech on the Internet: The case of CyberPatrol. Presented to the Huntingdon, PA Rotary Club, 22 April 2003.
- Ritter, F. E., McNeese, M. D., van Rooy, D. (2001). Conducting a usability analysis. <Web2001> a conference for penn state web professionals. [sic]
- What does a scientist do?, talks presented to six classes at Washington Grade School, Peoria, IL, March, 1994.

Published workshop papers, abstracts, and posters (selected)

- W80 Oury, J. D., Tehranchi, F., & Ritter, F. E. (2018). Predicting learning and retention of a complex task. In *Proceedings of the 16th International Conference on Cognitive Modeling (ICCM 2018)*. 90-95.
- W79 Tehranchi, F., & Ritter, F. E. (2018). Using Java to provide cognitive models with a more universal way to interact with graphical user interfaces. *Proceedings of the International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation*. Paper LB_15.
- W77 Ritter, F. E., Bouyat, C., Ekdahl, K., & Guzek, D. (2016). An update on automatic transcription vs. manual transcription. In *Proceedings of ICCM, 14th International Conference on Cognitive Modeling (ICCM 2016)*. 268-269. University Park, PA: Penn State.
- W76 Tehranchi, F., & Ritter, F. E. (2016). Connecting cognitive models to interact with human-computer interfaces. In *Proceedings of ICCM, 14th International Conference on Cognitive Modeling (ICCM 2016)*. 266-267. University Park, PA: Penn State.
- W75 Dancy, C. L., & Ritter, F. E. (2015). BICA and sex differences: We need to understand potential sex differences when developing computational models of human behavior. *Procedia Computer Science*, Vol. 71, 2015, pp. 131–132. *Proceedings of the 2015 Annual International Conference on Biologically Inspired Cognitive Architectures*.
- W74 Samsonovich, A. V., Lebiere, C., and Ritter, F. E. (2015). MAPPED repository: A comparative database of biologically inspired cognitive architectures (BICA). In: *2015 Neuroscience Meeting*

Planner, online. Abstract Control Number: 11714. 23.21SA/CC69. Washington, DC: Society for Neuroscience.

- W73 Siu, K. C., Best, B. J., Kim, J. W., Oleynikov, D., & Ritter, F. E. (2015). Surgical skill learning in space using an adaptive virtual reality trainer. NASA Human Research Program Investigators' Workshop. Galveston, Texas, January 2015.
<https://custom.cvent.com/3ACE90F6CD0147CB94AC59B7C6F7E370/files/19d739f73e1b457ca75b15312d0caa40.pdf>
- W72 Ritter, F. E., (2014). "CaffeineZone: An iPhone app to help moderate and understand caffeine levels", and "Textbook: *Foundations for Designing User-Centered Systems: What System Designers Need To Know About People*", CMU HCI Institute 20th Anniversary Celebration: Poster and Demo Session.
- W71 Ritter, F. E. (2014). A satisfying way to teach HCI: Outreach through usability reports. In *CHI 2014 Workshop, Developing a Living Curriculum to Support Global HCI Education*. [online proceedings, <http://www.sigchi.org/resources/education/chi-2014-education-workshop-position-papers-1>]
- W70 Siu, K. C., Best, B. J., Kim, J. W., Oleynikov, D., Ritter, F. E. (2014). Adaptive virtual reality training to optimize surgical skill learning in space. NASA Human Research Program Investigators' Workshop. Galveston, Texas, February 2014. 3244.pdf,
<http://www.hou.usra.edu/meetings/hrp2014/pdf/3244.pdf>
- W69 Kaulakis, R., Zhao, C., Morgan, J. H., Hiam, J. W., Sanford, J. P., & Ritter, F. E. (2012). Defining factors of interest for large-scale socio-cognitive simulations. Poster presented at DTRA Program Review 2012, Washington DC.
- W68 Sanford, J. P., Oleynikov, O., Siu, K.-C., & Ritter, F. E. (2012). Effects of varied surgical simulation training schedules on motor-skill acquisition: Somewhat massed training may lead to faster skill learning. *Military Health System Research Symposium*, Ft. Lauderdale, Florida, 13-16 August, 2012.
- W67 Hobbs, J. N., Ritter, F. E., & Morgan, J. H. (2012). D2P/CLS: A Tutor for Combat Lifesavers. In *Proceedings of the 21st Conference on Behavior Representation in Modeling and Simulation*. 12-BRIMS-043. 226-227. BRIMS Society: Amelia Island, FL.
- W66 Zhao, C., Kaulakis, R. M., Hiam, J. W., Morgan, J. H., Kataria, S., Sanford, J. P., & Ritter, F. E. (2011). Modeling Heterogenous socio-cognitive networks. Poster presented at the 2011 DTRA Annual Program Review.
- W65 Morita, J., Miwa, K., Kojima, K., & Ritter, F. E. (2011). Modeling decision making on the use of automation. In *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*, 1971-1976. Cognitive Science Society: Austin, TX.
- W64 Ritter, F. E., & Yeh, K.-C. M. (2011). Modeling pharmacokinetics and pharmacodynamics on a mobile device to help caffeine users. In *Augmented Cognition International Conference 2011, FAC 2011, HCII 2011, LNAI 6780* (Operational neuroscience session), 528-535. Springer-Verlag: Berlin Heidelberg.
- W63 Park, S-H., Suh, I. H., Chien, J-H., Paik, J-H., Ritter, F. E., Oleynikov, D., Siu, K-C. (2011). Modeling surgical skill learning with cognitive simulation. In J.D. Westwood et al. (Eds.) *Medicine Meets Virtual Reality 18*. IOS Press. 428-432.
- W62 Georgeon, O. L., Morgan, J. H., & Ritter, F. E. (2010). An algorithm for self-motivated hierarchical sequence learning. In D. D. Salvucci & G. Gunzelmann (Eds.), *Proceedings of ICCM - 2010- Tenth International Conference on Cognitive Modeling* (pp. 73-78).
- W61 Paik, J., Kim, J. W., Ritter, F. E., Morgan, J. H., Haynes, S. R., & Cohen, M. A. (2010). Building large learning models with Herbal. In D. D. Salvucci & G. Gunzelmann (Eds.), *Proceedings of ICCM - 2010- Tenth International Conference on Cognitive Modeling* (pp. 187-191).

- W59 Kase, S. E., Ritter, F. E., Schoelles, M. (2009). Caffeine's effect on appraisal and mental arithmetic performance: A cognitive modeling approach tells us more. In *Proceedings of ICCM - 2009- Ninth International Conference on Cognitive Modeling*. 174-179. Manchester, England.
- W58 Paik, J., Kim, J. W., & Ritter, F. E. (2009). A preliminary ACT-R compiler in Herbal. In *Proceedings of ICCM - 2009- Ninth International Conference on Cognitive Modeling*. 466-467. Manchester, England.
- W56 Ritter, F. E. (2009). Tutorial: A summary of Human-System Integration in the System Development Process. In *Proceedings of ICCM - 2009- Ninth International Conference on Cognitive Modeling*. 6-7. Manchester, England.
- W55 Christou, G., Ritter, F. E. & Jacob, R. J. K. (2009). Knowledge-based usability evaluation for reality-based interaction. Georgios Christou, Effie Lai-Chong Law, William Green, & Kasper Hornbaek (eds.) *Challenges in the evaluation of usability and user experience in reality-based interaction* (workshop proceedings). 36-39. IRIT Press, Toulouse, France. At *CHI 2009 Conference on Human Factors in Computing Systems*, Boston, MA, 2009.
- W54 Ritter, F. E. (2008). High-level behavior representation languages and moderators of behavior. *The USMA Network Science Workshop*, 15-17 October, 2008, West Point, NY.
- W50 Kim, J., & Ritter, F. E. (2007). Automatically recording keystrokes in public clusters with RUI: Issues and sample answers. In *Proceedings of the 29th Annual Conference of the Cognitive Science Society*. 1787. Austin, TX: Cognitive Science Society.
- W49 Girouard, A., Smith, N. W., & Ritter, F. E. (2006). Lessons from decompiling an embodied cognitive model. *Cognitio 2006 Workshop*.
<http://cognitio.uqam.ca/2006/index.php?section=posters&lng=en>
- W48 St. Amant, R., McBride, S. P., & Ritter, F. E. (2006). An AI planning perspective on abstraction in ACT-R modeling: Toward a HLBR language manifesto. In *Proceedings of the 13th ACT-R Workshop*. 72-76. Pittsburgh, PA: ACT-R Group, CMU.
- W46 Kim, J., Ritter, F. E., Koubek, R. J. (2006). ESEGMAN: A substrate for ACT-R architecture and an Emacs Lisp application. In *Proceedings of ICCM - 2006- Seventh International Conference on Cognitive Modeling*. 375. Trieste, Italy: Edizioni Goliardiche.
- W44 Reifers, A., Schenck, I., Ritter, F. E., & Inguscio, L. (2005). Using ACT-R to progress theories of pre-attentive visual search. In *Proceedings of the 12th ACT-R Workshop*. Universita degli Studi di Trieste, Italy.
- W43 Ritter, F. E., Reifers, A., Klein, L. C., Whetzel, C., Schoelles, M., Quigley, K. (2005). The effects of pre-task appraisal and caffeine on cognition: Data and models. In *Proceedings of the 12th ACT-R Workshop*. Universita degli Studi di Trieste, Italy.
ABCS Research Group, Max Planck, Berlin (November, 2005).
- W42 Reifers, A., Ritter, F., Klein, L., Whetzel, C. (2005). Modeling the effects of caffeine on visual signal detection (VSD) in a cognitive architecture. Poster presented at "Attention: From Theory to Practice" (A festschrift for Chris Wickens).
- W38 Inguscio, L., Marucci, F. S., Ritter, F. E. (2004). Il sistema di produzione ACT-R/PM: Un modello simulativo dei processi percettivo-motori. [The ACT-R production system: A model for simulating perceptual-motor processing.] *Congresso Nazionale della Sezione di Psicologia Sperimentale*. www.unipa.it/fragax/documenti/in_o_06_inguscio.pdf [abstract, in Italian]
- W37 Haynes, S. R., Councill, I. G., & Ritter, F. E. (2004). Responsibility-driven explanation engineering for cognitive models. In R. Jones (Ed.), *AAAI Workshop on intelligent agent architectures: Combining the strengths of software engineering and cognitive systems*. 46-52. Menlo Park, CA: AAAI Press.

- W35 Sun, S., Council, I., Fan, X., Ritter, F. E., & Yen, J. (2004). Comparing teamwork modeling in an empirical approach. In *Proceedings of the Sixth International Conference on Cognitive Modeling*. 388-389. Mahwah, NJ: Erlbaum.
- W32 Ritter, F. E. (2003). Comments on Grant and Roberts & Paschler, social processes in validation, as part of a Symposium on Model fitting and parameter estimation, notes included in the *Proceedings of the ACT-R Workshop*. 129-130.
- W23 Jones, G., & Ritter, F. E. (2000). Over-estimating cognition time: The benefits of using a task simulation. In *Simulating Human Agents, American Association for Artificial Intelligence Fall 2000 Symposium Series*. 67-74. Menlo Park, CA: AAAI Press.
- W21 Ritter, F. E. (2000). A role for cognitive architectures: Guiding user interface design, contribution to the Applications of Cognitive Architectures panel, slides included in the *Proceedings of the Seventh Annual ACT-R Workshop*, p. 85-91. Department of Psychology, Carnegie-Mellon University.
- W16 Ritter, F. E., & Young, R. M. (1999). Moving the Psychological Soar Tutorial to HTML: An example of using the Web to assist learning. In D. Peterson, R. J. Stevenson, & R. M. Young (Eds.), *Proceedings of the AISB '99 Workshop on Issues in Teaching Cognitive Science to Undergraduates*. 23-24. The Society of the study of Artificial Intelligence and Simulation of Behaviour.
- W14 Ritter, F. E., & Wallach, D. P. (1998). Models of two-person games in ACT-R and Soar. In *Proceedings of the Second European Conference on Cognitive Modelling*. 202-203. Thrumpton: Nottingham University Press.
- W8 Ritter, F. E. (1993). Three types of emotional effects that will occur in cognitive architectures. Workshop on architectures underlying motivation and emotion, The University of Birmingham 11-12 August. Also presented as a colloquium at the MRC-APU in Cambridge, October, 1993.
- W7 Ritter, F. E. (May, 1992). Theoretically guided semi-automatic routine protocol analysis. Talk presented at the CHI '92 Doctoral Consortium. Abstract included in the proceedings. This talk was also presented as colloquium at the U. of York, the U. of Nottingham, and Queen Mary and Westfield College in April 1992.
- W2 Reder, L. M., & Ritter, F. E. (1988). Feeling of Knowing and Strategy Selection for Solving Arithmetic Problems. *Proceedings of the Thirty-First Annual Meeting of the Psychonomics Society*. Psychonomic Society.

Seminars and presentations (selected)

- S153 Weyhrauch, P., Niehaus, J., McDermott, A., Ritter, F. E., Stager, S., (2018). Simulating Training Results to Understand Differing Effects of Fidelity on Learning (STRUDEL). ONR Cognitive Science of Learning Program Review.
- S152 Ritter, F. E., MacDougall, K., Yeh, M., Stager, S., Weyhrauch, P., McDermott, A., Niehaus, J. (2018). Maintenance training under uncertainty: Expanding smart tutoring to support skill learning and retention. ONR Cognitive Science of Learning Program Review.
- S151 Ritter, F. E., Oury, J., & Tehranchi, F. (2018). Testing the KRK theory. Presented at the ACT-R workshop, July 2018.
- S149 Ritter, F. E. (2018). Learning and User Modeling projects. Presentation to Army Research Lab/Orlando.
- S148 Ritter, F. E. (2018). Lunch and Learn: HCI, SE, and User Modeling. Presentation to Harris Corporation, Space and Intelligence Systems Segment.
- S147 Weyhrauch, P. W., Bauchwitz B., Niehaus J., Ritter F., & Garrison, C. (2018). System for Trauma Assessment Training (STAT) Phase II Final Briefing.

- S146 Tehranchi, F., & Ritter, F. E. (2017). Eye tracking to learn about learning in tutoring systems. Poster presentation in Connecting Language, Interaction and Education in Digital Environments (CLIEDE). University Park, PA: Penn State.
- S145 Weyhrauch PW, Niehaus J, Bauchwitz B, Broach J, Lancette P, Ritter F. (2017). Virtual patient simulation with objective metrics for primary and secondary trauma assessment. Presented at: Military Health System Research Symposium. 2017 Aug 27-30; Kissimmee, FL.
- S144 Weyhrauch, P., Niehaus, J., & Ritter, F. E. (2017). Simulating training results to understanding differing effects of fidelity on learning (STRUDEL). Presentation at the 2017 ONR Cognitive Science of Learning Program Review.
- S143 Ritter, F. E., Yeh, M., MacDougall, K., Weyhrauch, P., Niehaus, J., McDermott, A. (2017). Maintenance training under uncertainty: Expanding smart tutoring to support skill learning and retention. Presentation at the 2017 ONR Cognitive Science of Learning Program Review.
- S142 Weyhrauch, P., Danczyk, D., Ritter, F. E., Dancy, C., Middleton, V. (2016). Dynamic Representation for Evaluating the Effect of Moderators and Stress on Performance (DREEMS), Pre-Phase II Briefing, 17 Nov 2016. Prepared for: Edan Lev-Ari, Robert Auer, & Dean Sutherland (NSRDEC).
- S141 Ritter, F. E., Yeh, M., Weyhrauch, P., Niehaus, J. (16 September 2016). Maintenance training under uncertainty: Expanding smart tutoring to support skill learning and retention. Presentation at the 2016 ONR Cognitive Science of Learning Program Review.
- S139 Ritter, F. E. (2016). Modeling novice to expert performance with a modeling compiler. ACT-R Post-Graduate Summer School, 8 August 16
- S138 Ritter, F. E. (2016). “A way to slice emotions, (μ)affect, moderators” and Session chair for Emotions, Affects, and Behavior Moderators, ACT-R Post-Graduate Summer School, 8 August 16
- S137 Ritter, F. E., & Kennedy, W. (co-chairs) (2016). Symposium: Modeling Conferences. At the *International Conference on Cognitive Modeling*.
- S135 Ritter, F. E. (2016). Simon and Newell as grad mentors: Lessons from grad school and recent work on tutors. CMU Psychology 100th Founding Symposium and Reunion. May 2016.
- S134 Presented at *CHI 2016* as part of their invited program, with assistance from Bonnie John, Anthony Hornoff, & Marilyn Mantei-Tremain:
Paik, J., Kim, J. W., Ritter, F. E., & Reitter, D. (2015). Predicting user performance and learning in human-computer interaction with the Herbal compiler. *ACM Transactions on Computer-Human Interaction*, 22(5), Article No.: 25.
- S132 Ritter, F. E. (2016). Behavioral Modeling with the Herbal High-Level Language. Dept. of Industrial Engineering, U. of Buffalo. Feb. 2016.
- S131 Niehaus, J., Guarino, S., Ritter, F. E., & Yeh, M. (2016). Crowdsourced acquisition of models of learning transfer strategies (CRAM-LESS) Phase I STTR Final Briefing.
- S130 Weyhrauch, P., Niehaus, J., & Ritter, F. E. (2015). STAT 2 Kickoff presentation: Building trauma triage tutors for Air Force nurses and extending learning theory.
- S129 Weyhrauch, P., Danczyk, J., Ritter, F., & Middleton, V. (2015). Dynamic representation for evaluating the effect of moderators and stress on performance (DREEMS) [kick-off meeting briefing]
- S128 Ritter, F. E., Yeh, M., Weyhrauch, P. Niehaus, J. (2015). Maintenance training under uncertainty: Expanding smart tutoring to support skill learning and retention. 2015 ONR Cognitive Science of Learning Program Review.
- S127 Ritter, F. E. (2015). The application of a learning theory to two HCI applications: Tutoring and modeling novice to expert transitions. Cognitive Science Department, Carleton University.

- S126 Ritter, F. E., Yeh, M., Weyhrauch, P., Niehaus, J., Kim, J. W. (2015). Maintenance training under uncertainty: Expanding a smart tutoring system to support acquisition and retention of skills. ONR Neuro-Biology of Learning Program Review.
- S125 Ritter, F. E. (2015). Comments on documenting models based on documenting an ACT-R compiler. ACT-R 2015 Workshop. (1 page paper + slides).
- S124 Ritter, F. E., & Baxter, G. D. (2015). Reflections on Risk-Driven Design and Instruction. HCI Consortium Workshop, 3 page paper included. July 2015, Pajaro Dunes, CA.
- S123 Ritter, F. E. (2015). The application of a learning theory to two HCI applications: Tutoring and modeling novice to expert transitions. HCI Group, Computer Science, U. of Illinois at Urbana-Champaign.
- S121 Ritter, F. E., & Dancy, C. L. (2014). An update on tying cognitive architectures to physiological architectures. Invited talk, abstract in Samsonovich, A.V. and Robertson, P. (eds.). *Proceedings of Biologically Inspired Cognitive Architectures, BICA-2014*. 447.
- S120 Ritter, F. E. (2014). Declarative to Procedural Tutors: A family of cognitive architecture-based tutors. Naval Submarine Medical Research Laboratory, 7 February 2014.
- S119 Ritter, F. E. (2013). Discussant, “Motivations and goals in developing integrative models of human cognition” Symposium. Cognitive Science Society Annual Meeting.
- S118 Ritter, F. E. (2013). Using behavior representation models in risk-driven design. Allgemeine Psychologie und Arbeitspsychologie [General and Industrial Psychology group], TU-Chemnitz, 30 July 2013
HCI Group, Computer Science Department, U. of Hamberg, 24 July 2013.
- S116 Ritter, F. E. (2013). A learning model of a long, non-iterative spreadsheet task. Human Factors Research Group, U. of Nottingham.
Institute of Flight Guidance, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR) [German Aerospace Center].
Allgemeine Psychologie und Arbeitspsychologie [General and Industrial Psychology group], TU-Chemnitz, 30 July 2013
- S113 Ritter, F. E. (2013). Two inadvertent resources for teaching cognitive science. Presentation in a panel discussion: Teaching cognitive science and computational intelligence. *International Joint Conference on Neural Networks*.
- S111 Ritter, F. E. (2013). What matters in social networks: Defining factors of interest for agent-based socio-cognitive simulations. Cognitive Science Seminar, Tufts University. 4 March 2013.
- S110 Ritter, F. E. (2013). Cognitive architectures: What they are and future problems and perspectives. Guest lecture in CS 4100/5100 Foundations of Artificial Intelligence at Northeastern University. 27 February 2013.
- S109 Ritter, F. E. (2013). *An overview of the ABCS of HCI: What psychology do system designers need to know*. Charles River Analytics. 15 February 2013.
- S108 Ritter, F. E. (2013). Pathway-based integration of relational networks and textual information for detecting motivation and intent of WMD-related threats. Charles River Analytics. 30 January 2013.
- S107 Ritter, F. E. (2012). Overview of 2007 NRC Study on HSI in the systems engineering development process, and some resources, recent extensions, and tools. Charles River Analytics. 29 November 2012.
- S106 Ritter, F. E. (2012). A tutor for Shooting Moving Targets, and a general architecture for moving declarative knowledge to procedural knowledge. Human Research and Engineering Lab, Aberdeen Proving Ground.
- S105 Ritter, F. E. (2012). Modeling strategies and individual differences in learning a diagrammatic reasoning task. Chinese Academy of Sciences

- S104 Ritter, F. E., & Kim, J. (2012). Practical advice on how to run human behavioral studies. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society*. 28-29. Austin, TX: Cognitive Science Society. [tutorial]
- S102 Ritter, F. E., Morgan, J. H., & Kim, J. W. (2012). Practical aspects of running experiments with human participants. [Tutorial] In *Proceedings of the 21st Conference on Behavior Representation in Modeling and Simulation*. BRIMS Society: Amelia Island, FL. 12-BRIMS-046. 234-240.
- S98 Ritter, F. E., the ACS Lab, and St. Amant, R. (2011). Architecture as software. Presented at the ACT-R Post-Graduate Summer School July 16-19, 2011.
- S97 Ritter, F. E. (2011). Risk-driven design. HCI Consortium Workshop, June 2011, Monterey, CA.
- S96 Ritter, F. E. (2011). A smart tutoring system supporting acquisition and retention of skills: Moving Target Tutor (Investigating how to decrease skill decay). ONR Div. 30 Expertise Development External Review.
- S95 Ritter, F. E., Paik, J., & Kim, J. W. (2011). A learning model of a long, non-iterative spreadsheet task. Seminar. Naval Submarine Medical Research Laboratory, 10 March 2011.
- S94 Ritter, F. E., Paik, J., & Kim, J. W. (2010). A learning model of a long, non-iterative spreadsheet task. Seminar. Center for Advanced Surgical Technique, University of Nebraska Medical Center, 10 December 2010.
- S93 Ritter, F. E. (2010). A smart tutoring system supporting acquisition and retention of skills. Presentation at the ONR Human Performance, Training and Education Program Review Meeting, November 2010.
- S92 Ritter, F. E. (2010). We need success stories for BICA! Panel leader at the *Biologically Inspired Cognitive Architectures, the First Annual Meeting of the BICA Society*. November 2010.
- S91 Ritter, F. E. (2010). Annual review report on “Pathway-based Integration of Relational Networks and Textual Information for Detecting Motivation and Intent of WMD-related Threats” to the Defense Threat Reduction Agency Network Science Initiative. August 2010.
- S90 Ritter, F. E., Kim, J. W., Paik, J. (2010). A learning model of a long, non-iterative spreadsheet task. Presented at the ACT-R Workshop at the International Conference on Cognitive modeling.
- S89 Weyhrauch, P., Niehaus, J., & Ritter, F. (2010). EasyCog: A high-level cognitive language, compiler, and development environment for affordable, scalable, and robust development and maintenance of cognitive models for multiple cognitive architectures, *SBIR Phase II Kickoff Briefing*, ONR.
- S82 Ritter, F. E. (2009). Modeling strategies and individual differences in learning a diagrammatic reasoning task. Cognitive Science Distinguished Lecture. Carleton University, 5 March 2009.
- S77 Ritter, F. E. (2008). Task analyses, automated user models, and risk-driven design. Guest lecture in PL475 Human-Computer Interaction. USMA, 16 October, 2008, West Point, NY.
- S76 Ritter, F. E., Haynes, S. R., & Cohen, M. A. (2008). Herbal: Improved modeling through using a High-level behavior representation language to support reuse and maintenance. Presented at the AFOSR Joint Cog Sci/Software Engineering Workshop, July 2008.
- S75 Ritter, F. E., Evertsz, R., Busetta, P., Pedrotti, M., Bittner, J. L., & Kase, S. (2008). Agent-based approaches to macrocognition I: Extending a BDI architecture to create a cognitive architecture: Design, creation, validation, and lessons (CoJACK, a less hairy reasoner). Presented at: ARL Workshop on Developing and Understanding Computational Models of Macrocognition.
- S72 Ritter, F. E., Evertsz, R., Busetta, P., Pedrotti, M., & Bittner, J. L. (2008). CoJACK: Achieving Principled Behaviour Variation in a Moderated Cognitive Architecture. Joint Systems and Analysis Group, Modeling and Simulation Technical Panel, Computer Generated Forces Workshop. The Technical Cooperation Program (TTCP).

- S71 Ritter, F. E. (2008). *Human-System Integration in the System Development Process*, presented at QinetiQ Malvern. March 19, 2008.
- S70 Ritter, F. E., & Bittner, J. (2008). *IHBR Science Demo: Tests of Moderators in CoJACK*, presented at IHBR review at Warminster, UK.
- S64 Cohen, M. A., Ritter F. E., Haynes, S. R. (2007). Using a high-level behavior representation language and graphical development environment to teach cognitive modeling and agent programming. Presented at the 2007 Annual Meeting of the Pennsylvania Association of Computer Information Science Educators, Lock Haven University.
- S59 Ritter, F. E. (2006). Some stress theories: Terms, tasks, models, theories, and overlays. ACT-R DARPA BICA 2006 Workshop, 10-11 Feb 2006. Charles River Analytics, March 2006. Bolt Beranek and Newman, March 2006.
- S58 Ritter, F. E. (2006). Some new components for an automatic user for testing human-computer interfaces. Computer Science Department Colloquium Series, Tufts University. Middlesex University, November 2006.
- S53 Ritter, F. E., Haynes, S. R., Cohen, M. A. (2005). Making Soar more articulate and modeling more affordable through explanation, interaction, & environment. ONR Affordable Human Behavior Modeling Workshop, 2 June 2005.
- S46 Ritter, F. E. (August, 2004). Projects modeling architectural changes. Human Research and Engineering Directorate, Army Research Lab, Aberdeen Proving Ground.
- S45 Ritter, F. E., Klein, L. C., Reifers, A., & Ceballos, R. (2004). The effects of pre-task appraisals and caffeine on cognition: Data and models. Presentation and abstract at ONR Neural Computation 2004 Annual Investigator Conference, U. of Nevada at Reno, August 20 to August 22. (invited from another program.)
- S43 Ritter, F. E., Freed, A., & Haskett, O. (2004). User information needs: The case of university department web sites. Seminar presented to the Department of Information Science, U. of Melbourne. Also to Allgemeine Psychologie und Arbeitspsychologie [General and Industrial Psychology group], TU-Chemnitz, 8 November 2005.
- S40 Ritter, F. E., Klein, L. C., Quigley, K. S., Councilill, I. G., Avraamides, M. N., Reifers, A. L., Whetzel, C. A., Simpson, K., Stine, M. M., Ceballos, R. M., Morgan, G. P., & Ghandi, M. (2003). Using cognitive modeling to study behavior moderators: Pre-task appraisal, anxiety, and caffeine. ONR Cognitive and Computational Models of Cortex Workshop, November 2003. (invited) also presented at RPI's series on "Issues in Cognitive Science", January 2004.
- S39 Ritter, F. E. (2003). Embodied models as simulated users, eyes, hands, and hearts. Computer Science Colloquium, North Carolina State University. 27 May 2003
- S36 Ritter, F. E. (2002). A simple, reusable, validated model of pre-task appraisal and anxiety. ONR Cognitive and Computational Models of Cortex Workshop, September, 2002. (invited)
- S34 Ritter, F. E. (2002). Capabilities in Applied Cognitive Science at Penn State. Talk presented at the Institute for Defense Analysis, Alexandria, VA.
- S33 Ritter, F. E., Mudgett, D. R., & Freed, A. R. (May 2002). Developing and finding Java and HTML resources for teaching discrete math. Penn State Teaching and Learning Colloquy 2002.
- S23 Ritter, F. E. (1998). Extending user interface management systems to support cognitive models as users. Colloquia presented at Department of Informatik [Computer Science], Technische Universität Chemnitz. Also presented at: Department of Computer and Information Science, The Ohio State University. School of Information Sciences and Technology, Pennsylvania State University. Department of EECS, U. of Illinois at Chicago. ESRC Centre for Research in

Development, Instruction, and Training, U. of Nottingham. Applied Psychology Program, George Mason University. DSTO. (Australia), HCI Institute, Swinburne Inst. of Technology. IPO, Technical University of Eindhoven. Department of Computer Science and Engineering, Penn State.

- S22 Ritter, F. E. (1998). Discussant, Panel on procedural vs. declarative memory, *Fifth Annual ACT-R Workshop*, Carnegie-Mellon University.
- S20 Ritter, F. E. (October, 1997). Overview of methodologies for studying order effects. Plenary meeting, European Science Foundation's Programme on Learning in Humans and Machines. Mannheim, Germany.
- S16 Ritter, F. E. (1995). What cognitive architectures can provide HCI. Colloquium presented at Ergonomics Unit, University College/London.
- S15 Ritter, F. E. (1994). Using process models as summaries of HCI data, colloquium presented at the Department of Psychology, U. of York, LRDC (U. of Pittsburgh), and Armstrong Lab, Brooks AFB.
- S5 Ritter, F. E. (September, 1988). "ITS and Modeling the Seibel Task in Soar". Invited presentation at the Air Force Human Resources Lab, Cognitive Skills Assessment Branch, Brooks AFB.
- S3 Ritter, F. E. (1985). "Simulated Annealing as a Function Minimization Technique" and "Simulated Annealing as a Planning Technique". Presented as seminars in a series on "Genetic and Other Probabilistic Algorithms" at BBN, and as a guest lectures to CS 113: Artificial Intelligence (graduate level course) at Brandeis University, October-November 1985.

Interesting documents and unpublished papers

- Schoelles, M., & Ritter, F. E. (2003). Hands on tutorial for ACT-R (HOT4 ACT-R). Applied Cognitive Science Lab, Summer 2003.
- Ritter, F. E. (2001). Guide to living in State College. Unpublished 18 p. document. Updated yearly www.frankritter.com/guide/guide2SC.1.html
- Ritter, F. E., Reber, R., Ritter, S., Reber, P., Ritter, C., Reder, L. M., Ritter, J. M., Bodenhausen, U., & Etal, E. (1996). The effect of price on gustatory perception of fermented malt beverages. *J. of Irreproducible Results*, 41(3), 18-20.
- Ritter, F. E. (1992). How to attend a conference. Presented as colloquia at CMU Psychology "The science meets the profession" colloquium series, and at the Postgraduate workshop at the AISB 1994, 1995, 1996 Spring meetings. Unpublished 4 p. document.

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