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RESEARCH INTERESTS

Educational Data Mining, Learner-Computer Interaction, Gaming the System, Student Modeling (Disengagement, Affect, Robust Learning, Knowledge, Strategic Behavior, Meta-Cognition), Intelligent Tutoring Systems, Serious Games/Educational Games, Science Microworlds, Off-Task Behavior, Cultural Factors

EDUCATION

Ph. D. Human-Computer Interaction. Carnegie Mellon University. Conferred on December 22, 2005. Advisors: Kenneth R. Koedinger, Albert T. Corbett

M.S. Human-Computer Interaction. Carnegie Mellon University. Conferred August 9, 2005.

ScB. Computer Science. Brown University. Graduated with Honors in Computer Science, May 2000.

CURRENT APPOINTMENT

Assistant Professor of Psychology and Learning Science. Department of Social Science and Policy Studies. Courtesy Appointment in Computer Science. Worcester Polytechnic Institute. Fall 2009 – present.

OTHER CURRENT POSITIONS

President. *International Educational Data Mining Society*. 2011-Present.

Associate Editor. *Journal of Educational Data Mining*. 2008-Present.

PRIOR PROFESSIONAL EXPERIENCE

Technical Director. Pittsburgh Science of Learning Center DataShop. Carnegie Mellon University. Fall 2008 – Summer 2009.

Post Doctoral Fellow. Human-Computer Interaction Institute/Pittsburgh Science of Learning Center. Carnegie Mellon University. Summer 2007 - Summer 2009. Mentor: Vincent Aleven

Research Fellow. Learning Sciences Research Institute. University of Nottingham. Spring 2006 – Spring 2007. Mentor: Shaaron Ainsworth.

Post Doctoral Fellow. Human-Computer Interaction Institute. Carnegie Mellon University. Winter 2006.

Graduate Research Assistant/ Graduate Fellow. Human-Computer Interaction Institute. Carnegie Mellon University. Advisors: Kenneth R. Koedinger, Albert T. Corbett. Fall 2000 – Fall 2005.

Undergraduate Research Assistant. JDSL (Data Structures Library in JAVA) Project. Computer Science Department. Brown University. Advisor: Roberto Tamassia. Summer 1997 – Spring 2000.

Research Assistant. LARC (LABoratory for Recreational Computing) Games Lab. Computer Science Department. University of North Texas. Advisor: Ian Parberry. Summer 1995– Spring 1996.

Educational Software Developer. Office of Education. Superconducting Super Collider Laboratory. Managers: Sam Kivlighn, Tom Gadsden. Summer 1992– Spring 1994.

AWARDS (SCHOLARSHIP)

AERA SIG-ATL Best Student Paper Award. Annual Meeting of the American Educational Research Association, 2012.

People's Choice Award for Best Oral Presentation. 10th International Conference on Intelligent Tutoring Systems, 2010.

People's Choice Award for Best Interactive Event. 10th International Conference on Intelligent Tutoring Systems, 2010.

Best Paper Award. 8th International Conference on Intelligent Tutoring Systems, 2006.

Senior Prize in Computer Science. Brown University, 2000.

AWARDS/NOMINATIONS (TEACHING)

Nomination. Romeo L. Moruzzi Young Faculty Award for Innovation in Undergraduate Education, Worcester Polytechnic Institute. 2011.

GRANTS, PROJECT AWARDS, AND FELLOWSHIPS

Funding as PI or Co-PI (2009-2011): \$6,296,868

Money brought to WPI as PI, Co-PI, Subcontract Lead (2009-2011): \$3,307,122

Bill and Melinda Gates Foundation, US Program, Vital Behaviors and Skills Associated with Engagement Derived from Learning Analytics Topic. Towards an Engagement Pedometer for Everyone: Unobtrusive Assessment of Engagement and Disengagement. Baker, R.S.J.d. (PI). 2011-2012. \$277,044. Award #OPP1048577.

National Science Foundation, Software and Hardware Foundations (SHF). SHF: Small: User Studies to Improve Novice Programming. Fisler, K. (PI), Baker, R.S.J.d. (Co-PI). 2011-2014. \$261,561. Award #CCF-1116539.

U.S. Department of Education, Institute of Education Sciences. Classroom Environment, Allocation of Attention, and Learning Outcomes in K-4 Students. Fisher, A. (PI), Baker, R.S.J.d. (Co-PI). 2011-2015. \$1,571,973. Award #R305A110444.

Subcontract to WPI: Classroom Environment, Allocation of Attention, and Learning Outcomes in K-4 Students. Baker, R.S.J.d. (subcontract lead). 2011-2015. \$ 326,099.

National Science Foundation, Innovative Technology Experiences for Students and Teachers (ITEST). Research: Predicting STEM Career Choice from Computational Indicators of Student Engagement within Middle School Mathematics Classes. Baker, R.S.J.d. (PI), Heffernan, N.T. (Co-PI). June 2011 – May 2014. \$711,609. Award #DRL-1031398.

National Science Foundation, Research and Evaluation on Education in Science and Engineering (REESE). Empirical Research: Emerging Research: Using Automated Detectors to Examine the Relationships Between Learner Attributes and Behaviors During Inquiry in Science Microworlds. Gobert, J.G. (PI), Baker, R.S.J.d. (Co-PI). July 2010 – June 2013. \$986,111. Award #DRL-1008649.

National Science Foundation, Research and Evaluation on Education in Science and Engineering (REESE). Empirical Research: Emerging Research: Robust and Efficient Learning: Modeling and Remediating Students' Domain Knowledge. Corbett, A.T. (PI), Baker, R.S.J.d. (Co-PI). July 2009 – June 2012. \$1,066,102. Award # DRL-0910188.

Subcontract to WPI: Empirical Research: Emerging Research: Robust and Efficient Learning: Modeling and Remediating Students' Domain Knowledge. Baker, R.S.J.d. (subcontract lead). 2009-2012. \$161,781.

U.S. Department of Education, Institute of Education Sciences. Promoting Robust Understanding of Genetics with a Cognitive Tutor that Integrates Conceptual Learning with Problem Solving. Corbett, A.T. (PI), Baker, R.S.J.d. (Co-PI). 2009-2012. \$1,422,468. Award # R305A090549.

Subcontract to WPI: Promoting Robust Understanding of Genetics with a Cognitive Tutor that Integrates Conceptual Learning with Problem Solving. Baker, R.S.J.d. (subcontract lead). 2009-2012. \$265,957.

National Science Foundation, Science of Learning Centers. Toward a Decade of PSLC Research: Investigating Instructional, Social, and Learner Factors in Robust Learning through Data-Driven Analysis and Modeling. Koedinger, K.R. (PI). Baker, R.S.J.d. (Senior Personnel). February 2010- January 2015. \$25,000,000. Award # SBE-0836012.

Subcontract to WPI: PSLC Projects in Affect Detection and Closing the Loop on Gaming the System. Baker, R.S.J.d. (subcontract lead). 2010-2012. \$316,960.

Pittsburgh Science of Learning Center Project Award. Improving Student Affect Through Adding Gaming Elements to Mathematics LearnLabs. Aleven, V. (PI). Baker, R.S.J.d. (co-PI). August 2008 - September 2009. \$104,901.

Pittsburgh Science of Learning Center Project Award. Geometry Greatest Hits. Aleven, V (PI). Baker, R.S.J.d. (co-PI). August 2008 - September 2009. \$101,861.

Pittsburgh Science of Learning Center Project Award. How Content and Interface Features Influence Student Choices Within the Learning Space. Baker, R.S.J.d. (PI). July 2007 - July 2008. \$73,718.

Kaleidoscope Initiative. A Centralized Research Data Repository. Melis, E. (PI), Baker, R. (co-PI). March-December 2007. €15,000.

National Defense Science and Engineering Graduate Fellowship. American Society of Engineering Education/Department of Defense. Fall 2001- Spring 2004.

COURSES TAUGHT

Advanced Methods and Analysis for the Learning and Social Sciences. Department of Social Sciences and Policy Studies, Worcester Polytechnic Institute.
Spring 2012. (student course evals: 4.86/5.0)

Cognitive Psychology. Department of Social Sciences and Policy Studies, Worcester Polytechnic Institute.
Fall 2011, A term. (student course evals: 4.13/5.0; univ. avg. for ugrad classes 4.10)
Fall 2010, B term. (student course evals: 4.22/5.0; univ. avg. for ugrad classes 4.04)

Meta-Cognition, Motivation, and Affect. Department of Social Sciences and Policy Studies, Worcester Polytechnic Institute.
Spring 2011. (student course evals: 4.5/5.0; univ. avg. for grad classes 4.22)

Educational Psychology. (taught as ISP). Department of Social Sciences and Policy Studies, Worcester Polytechnic Institute.
Spring 2011, D term. (student course evals not collected)
Fall 2010, A term. (student course evals not collected)

Research Methods for the Learning Sciences (taught as ISP). Department of Social Sciences and Policy Studies, Worcester Polytechnic Institute.
Spring 2010, C term. (student course evals: 5.0/5.0; univ. avg. for grad classes 4.20)

Learning and Motivation. Co-taught with Vincent Aleven. Human-Computer Interaction Institute and Department of Psychology, Carnegie Mellon University. Spring 2009.

Design e Comunicação na Web. (Design and Communication on the Web). Programa de Pós-Graduação em Engenharia de Software (Software Engineering Post-Graduate Program). Faculdade de Alagoas (Alagoas College). December 2008.

Research Methods for the Learning Sciences. Co-taught with Kenneth R. Koedinger. Human-Computer Interaction Institute, Carnegie Mellon University. Spring 2008.

Learning and Technology. Co-taught with Claire O'Malley. Learning Sciences Research Institute, University of Nottingham. Spring 2007.

Human-Computer Interaction for Computer Scientists. Co-taught with Kenneth R. Koedinger, Jacob Wobbrock, and A. Fleming Seay. Human-Computer Interaction Institute, Carnegie Mellon University. Spring 2004.

PUBLICATIONS

Total citations: 1,419 (Google Scholar, April 30, 2012)

h-index: 21 (Google Scholar, April 30, 2012)

Most cited paper: (Baker, Corbett, Koedinger, Wagner, 2004)
(168 citations – Google Scholar, April 30, 2011)

Number of distinct co-authors on published papers: 158

Journal Papers

Sao Pedro, M.A., Baker, R.S.J.d., Gobert, J., Montalvo, O. Nakama, A. (in press) Leveraging Machine-Learned Detectors of Systematic Inquiry Behavior to Estimate and Predict Transfer of Inquiry Skill. To appear in *User Modeling and User-Adapted Interaction*.

Rodrigo, M.M.T., Baker, R.S.J.d., Agapito, J., Nabos, J., Repalam, M.C., Reyes, S.S., San Pedro, M.C.Z. (in press) The Effects of an Interactive Software Agent on Student Affective Dynamics while Using an Intelligent Tutoring System. To appear in *IEEE Transactions on Affective Computing*.

Baker, R.S.J.d. (in press) Gaming the System: A Retrospective Look. To appear in the *Philippine Computing Journal*.

Desmarais, M.C., Baker, R.S.J.d. (2012) A Review of Recent Advances in Learner and Skill Modeling in Intelligent Learning Environments. *User Modeling and User-Adapted Interaction*, 22 (1-2), 9-38.

Baker, R.S.J.d., Goldstein, A.B., Heffernan, N.T. (2011) Detecting Learning Moment-by-Moment. *International Journal of Artificial Intelligence in Education*, 21 (1-2), 5-25.

Pardos, Z.A., Baker, R.S.J.d., Gowda, S.M., Heffernan, N.T. (2011) The Sum is Greater than the Parts: Ensembling Models of Student Knowledge in Educational Software. *SIGKDD Explorations*, 13 (2), 37-44.

Rodrigo, M.M.T., Baker, R.S.J.d. (2011) Comparing Learners' Affect While Using an Intelligent Tutor and an Educational Game. *Research and Practice in Technology Enhanced Learning*, 6 (1), 43-66.

- Baker, R.S.J.d., Isotani, S., de Carvalho, A. (2011) Mineração de Dados Educacionais: Oportunidades para o Brasil. *Revista Brasileira de Informática na Educação*, 19 (2), 3-13.
- Baker, D.J., Baker, R.S.J.d., Uhing, B. (2011) Content of Instruction for Transition-age Youth with Disabilities: A Brief Report. *National Association for the Dually Diagnosed (NADD) Bulletin*, 14 (5), 89-94.
- Baker, R.S.J.d., D'Mello, S.K., Rodrigo, M.M.T., Graesser, A.C. (2010) Better to Be Frustrated than Bored: The Incidence, Persistence, and Impact of Learners' Cognitive-Affective States during Interactions with Three Different Computer-Based Learning Environments. *International Journal of Human-Computer Studies*, 68 (4), 223-241. **(51 citations - Google Scholar, April 30, 2012)**
- Baker, R.S.J.d., Yacef, K. (2009) The State of Educational Data Mining in 2009: A Review and Future Visions. *Journal of Educational Data Mining*, 1 (1), 3-17. **(61 citations – Google Scholar, April 30, 2012)**
- Baker, R.S.J.d., Corbett, A.T., Roll, I., Koedinger, K.R. (2008) Developing a Generalizable Detector of When Students Game the System. *User Modeling and User-Adapted Interaction*, 18 (3), 287-314. **(50 citations – Google Scholar, April 30, 2012)**
- Baker, R.S.J.d., Walonoski, J.A., Heffernan, N.T., Roll, I., Corbett, A.T., Koedinger, K.R. (2008) Why Students Engage in “Gaming the System” Behavior in Interactive Learning Environments. *Journal of Interactive Learning Research*, 19 (2), 185-224. **(46 citations – Google Scholar, April 30, 2012)**
- Baker, R.S.J.d., Corbett, A.T., Koedinger, K.R. (2007) The Difficulty Factors Approach to the Design of Intelligent Tutoring Systems. *International Journal of Artificial Intelligence in Education*, 17 (4), 341-369.
- Baker, R.S., Corbett, A.T., Koedinger, K.R. (2006) Responding to Problem Behaviors in Cognitive Tutors: Towards Educational Systems Which Support All Students. *National Association for the Dually Diagnosed (NADD) Bulletin*, 9 (4), 70-75.
- Tamassia R., Goodrich M.T., Vismara L., Handy M., Cohen R., Hudson B., Baker, R.S., Gelfand, N., Shubina G., Brandes U. (2001) JDSL: The Data Structures Library in Java. *Dr. Dobb's Journal and Sourcebook*, April 2001, 21-33.

Book Chapters

- Baker, R.S.J.d., Corbett, A.T., Roll, I., Koedinger, K.R., Alevan, V., Cocea, M., HersHKovitz, A., de Carvalho, A.M.J.B., Mitrovic, A., Mathews, M. (accepted) Modeling and Studying Gaming the System with Educational Data Mining. To appear in Azevedo, R., & Alevan, V. (Eds.) *International Handbook of Metacognition and Learning Technologies*. New York, NY: Springer.
- Rodrigo, M.M.T., Baker, R.S.J.d. (2011) Comparing the Incidence and Persistence of Learners' Affect During Interactions with Different Educational Software Packages. In Calvo, R.A., & D'Mello, S. (Eds.) *New Perspectives on Affect and Learning Technologies*. New York, NY: Springer, pp. 183-202.

Koedinger, K.R., Baker, R.S.J.d., Cunningham, K., Skogsholm, A., Leber, B., Stamper, J. (2010) A Data Repository for the EDM community: The PSLC DataShop. In Romero, C., Ventura, S., Pechenizkiy, M., Baker, R.S.J.d. (Eds.) *Handbook of Educational Data Mining*. Boca Raton, FL: CRC Press, pp. 43-56. **(38 citations - Google Scholar, April 30, 2012)**

Romero, C., Ventura, S., Pechenizkiy, M., Baker, R.S.J.d. (2010) Introduction. In Romero, C., Ventura, S., Pechenizkiy, M., Baker, R.S.J.d. (Eds.) *Handbook of Educational Data Mining*. Boca Raton, FL: CRC Press, pp. 1-8.

Baker, R.S.J.d. (2010) Mining Data for Student Models. In Nkmabou, R., Mizoguchi, R., & Bourdeau, J. (Eds.) *Advances in Intelligent Tutoring Systems*, pp. 323-338. Secaucus, NJ: Springer.

Baker, R.S.J.d. (2010) Data Mining for Education. In McGaw, B., Peterson, P., Baker, E. (Eds.) *International Encyclopedia of Education (3rd edition)*, vol. 7, pp. 112-118. Oxford, UK: Elsevier. **(28 citations - Google Scholar, April 30, 2012)**

Koedinger, K., Aleven, V., Roll, I., Baker, R. (2009) In vivo experiments on whether supporting metacognition in intelligent tutoring systems yields robust learning. Graesser, A., Hacker, D. (Eds.), *Handbook of Metacognition in Education*, 383-412.

Conference Full Papers in Stringently Refereed Proceedings

Baker, R.S.J.d., Gowda, S.M., Wixon, M., Kalka, J., Wagner, A.Z., Salvi, A., Aleven, V., Kusbit, G., Ocumpaugh, J., Rossi, L. (accepted) Sensor-free automated detection of affect in a Cognitive Tutor for Algebra. Accepted to the 5th *International Conference on Educational Data Mining*.

Wixon, M., Baker, R.S.J.d., Gobert, J., Ocumpaugh, J., Bachmann, M. (in press) WTF? Detecting Students who are Conducting Inquiry Without Thinking Fastidiously. To appear in *Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization (UMAP 2012)*.

Sao Pedro, M., Baker, R.S.J.d., Gobert, J. (in press) Improving Construct Validity Yields Better Models of Systematic Inquiry, Even with Less Information. To appear in *Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization (UMAP 2012)*.

Baker, R.S.J.d., Gowda, S., Corbett, A., Ocumpaugh, J. (in press) Towards Automatically Detecting Whether Student Learning is Shallow. To appear in *Proceedings of the International Conference on Intelligent Tutoring Systems*.

Gowda, S., Pardos, Z., Baker, R.S.J.d. (accepted) Content Learning Analysis Using the Moment-By-Moment Learning Detector. To appear in *Proceedings of the International Conference on Intelligent Tutoring Systems*.

Hershkovitz, A., Baker, R.S.J.d., Gobert, J., Nakama, A. (in press) A Data-driven Path Model of Student Attributes, Affect, and Engagement in a Computer-based Science Inquiry Microworld. To appear in *Proceedings of the International Conference on the Learning Sciences*.

Ogan, A., Walker, E., Baker, R.S.J.d., de Carvalho, A., Laurentino, T., Rebolledo-Mendez, G., Castro, M.J. (in press) Collaboration in Cognitive Tutor Use in Latin America: Field Study and

Design Recommendations. To appear in *Proceedings of ACM SIGCHI: Computer-Human Interaction*.

Sao Pedro, M.A., Gobert, J., Baker, R.S.J.d. (2012) The Development and Transfer of Data Collection Inquiry Skills across Physical Science Microworlds. Paper presented at the *American Educational Research Association Conference*. [Won Best Student Paper Award, AERA SIG-ATL]

Baker, R.S.J.d., Gowda, S., Corbett, A.T. (2011) Towards predicting future transfer of learning. *Proceedings of 15th International Conference on Artificial Intelligence in Education*, 23-30. [Finalist for Best Paper Award]

Baker, R.S.J.d., Gowda, S.M., Corbett, A.T. (2011) Automatically Detecting a Student's Preparation for Future Learning: Help Use is Key. *Proceedings of the 4th International Conference on Educational Data Mining*, 179-188.

Baker, R.S.J.d., Moore, G., Wagner, A., Kalka, J., Karabinos, M., Ashe, C., Yaron, D. (2011) The Dynamics Between Student Affect and Behavior Occuring Outside of Educational Software. *Proceedings of the 4th bi-annual International Conference on Affective Computing and Intelligent Interaction*.

Lee, D.M., Rodrigo, M.M., Baker, R.S.J.d., Sugay, J., Coronel, A. (2011) Exploring the Relationship Between Novice Programmer Confusion and Achievement. *Proceedings of the 4th bi-annual International Conference on Affective Computing and Intelligent Interaction*.

San Pedro, M.O.C., Baker, R.S.J.d., Rodrigo, M.M. (2011) The Relationship between Carelessness and Affect in a Cognitive Tutor. *Proceedings of the 4th bi-annual International Conference on Affective Computing and Intelligent Interaction*.

Corbett, A., MacLaren, B., Wagner, A., Kauffman, L., Mitchell, A., Baker, R.S.J.d., Gowda, S.M. (2011) Preparing Students for Effective Explaining of Worked Examples in the Genetics Tutor. *Proceedings of the 33rd Annual Meeting of the Cognitive Science Society*, 1476-1481.

Baker, R.S.J.d., Pardos, Z., Gowda, S., Nooraei, B., Heffernan, N. (2011) Ensembling Predictions of Student Knowledge within Intelligent Tutoring Systems. *Proceedings of the 19th International Conference on User Modeling, Adaptation, and Personalization*, 13-24.

Pardos, Z. A., Gowda, S. M., Baker, R.S.J.d., Heffernan, N. T. (2011) Ensembling Predictions of Student Post-Test Scores for an Intelligent Tutoring System. *Proceedings of the 4th International Conference on Educational Data Mining*, 189-198.

Gowda, S.M., Rowe, J.P., Baker, R.S.J.d., Chi, M., Koedinger, K.R. (2011) Improving Models of Slipping, Guessing, and Moment-by-Moment Learning with Estimates of Skill Difficulty. *Proceedings of the 4th International Conference on Educational Data Mining*, 199-208.

Nooraei, B.B., Pardos, Z.A., Heffernan, N.T., Baker, R.S.J.d. (2011) Less is More: Improving the Speed and Prediction Power of Knowledge Tracing by Using Less Data. *Proceedings of the 4th International Conference on Educational Data Mining*, 101-109.

San Pedro, M.O.C., Baker, R., Rodrigo, M.M. (2011) Detecting Carelessness through Contextual Estimation of Slip Probabilities among Students Using an Intelligent Tutor for Mathematics. To

appear in *Proceedings of 15th International Conference on Artificial Intelligence in Education*, 304-311.

Baker, R.S.J.d., Corbett, A.T., Gowda, S.M., Wagner, A.Z., MacLaren, B.M., Kauffman, L.R., Mitchell, A.P., Giguere, S. (2010) Contextual Slip and Prediction of Student Performance After Use of an Intelligent Tutor. *Proceedings of the 18th Annual Conference on User Modeling, Adaptation, and Personalization*, 52-63. **[Finalist for Best Paper Award] (21 citations - Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Mitrovic, A., Mathews, M. (2010) Detecting Gaming the System in Constraint-Based Tutors. *Proceedings of the 18th Annual Conference on User Modeling, Adaptation, and Personalization*, 267-278.

Baker, R.S.J.d., Goldstein, A.B., Heffernan, N.T. (2010) Detecting the Moment of Learning. *Proceedings of the 10th Annual Conference on Intelligent Tutoring Systems*, 25-34. **[People's Choice Award for Best Oral Presentation] [Finalist for Best Paper Award]**

Baker, R.S.J.d., Gowda, S.M. (2010) An Analysis of the Differences in the Frequency of Students' Disengagement in Urban, Rural, and Suburban High Schools. *Proceedings of the 3rd International Conference on Educational Data Mining*, 11-20.

Sao Pedro, M. A., Baker, R.S.J.d., Montalvo, O., Nakama, A., Gobert, J.D. (2010) Using Text Replay Tagging to Produce Detectors of Systematic Experimentation Behavior Patterns. *Proceedings of the 3rd International Conference on Educational Data Mining*, 181-190.

Montalvo, O., Baker, R.S.J.d., Sao Pedro, M.A., Nakama, A., Gobert, J.D. (2010) Identifying Student' Inquiry Planning Using Machine Learning. *Proceedings of the 3rd International Conference on Educational Data Mining*, 141-150.

Baker, R.S.J.d., de Carvalho, A.M.J.A., Raspat, J., Aleven, V., Corbett, A.T., Koedinger, K.R. (2009) Educational Software Features that Encourage and Discourage "Gaming the System". *Proceedings of the 14th International Conference on Artificial Intelligence in Education*, 475-482. **[Honorable Mention for Best Paper Award]**

Baker, R.S.J.d. (2009) Differences Between Intelligent Tutor Lessons, and the Choice to Go Off-Task. *Proceedings of the 2nd International Conference on Educational Data Mining*, 11-20.

Rodrigo, M.M.T., Baker, R.S.J.d. (2009) Coarse-Grained Detection of Student Frustration in an Introductory Programming Course. *Proceedings of ICER 2009: the International Computing Education Workshop*.

Rodrigo, M.M.T., Baker, R.S., Jadud, M.C., Amarra, A.C.M., Dy, T., Espejo-Lahoz, M.B.V., Lim, S.A.L., Pascua, S.A.M.S., Sugay, J.O., Tabanao, E.S. (2009) Affective and Behavioral Predictors of Novice Programmer Achievement. *Proceedings of the 14th ACM-SIGCSE Annual Conference on Innovation and Technology in Computer Science Education*, 156-160.

Prata, D.N., Baker, R.S.J.d., Costa, E., Rosé, C.P., Cui, Y., de Carvalho, A.M.J.B. (2009) Detecting and Understanding the Impact of Cognitive and Interpersonal Conflict in Computer Supported Collaborative Learning Environments. *Proceedings of the 2nd International Conference on Educational Data Mining*, 131-140.

Cocea, M., Hershkovitz, A., Baker, R.S.J.d. (2009) The Impact of Off-task and Gaming Behaviors on Learning: Immediate or Aggregate? *Proceedings of the 14th International Conference on Artificial Intelligence in Education*, 507-514.

Baker, R.S.J.d., Corbett, A.T., Aleven, V. (2008) Improving Contextual Models of Guessing and Slipping with a Truncated Training Set. *Proceedings of the 1st International Conference on Educational Data Mining*, 67-76.

Baker, R.S.J.d., de Carvalho, A. M. J. A. (2008) Labeling Student Behavior Faster and More Precisely with Text Replays. *Proceedings of the 1st International Conference on Educational Data Mining*, 38-47. **(20 citations – Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Corbett, A.T., Aleven, V. (2008) More Accurate Student Modeling Through Contextual Estimation of Slip and Guess Probabilities in Bayesian Knowledge Tracing. *Proceedings of the 9th International Conference on Intelligent Tutoring Systems*, 406-415. **(46 citations – Google Scholar, April 30, 2012)**

Rodrigo, M.M.T., Baker, R.S.J.d., d’Mello, S., Gonzalez, M.C.T., Lagud, M.C.V., Lim, S.A.L., Macapanpan, A.F., Pascua, S.A.M.S., Santillano, J.Q., Sugay, J.O., Tep, S., Viehland, N.J.B. (2008) Comparing Learners’ Affect While Using an Intelligent Tutoring Systems and a Simulation Problem Solving Game. *Proceedings of the 9th International Conference on Intelligent Tutoring Systems*, 40-49.

Rodrigo, M.M.T., Anglo, E.A., Sugay, J.O., Baker, R.S.J.d. (2008) Use of Unsupervised Clustering to Characterize Learner Behaviors and Affective States while Using an Intelligent Tutoring System. *Proceedings of International Conference on Computers in Education*.

Rodrigo, M.M.T., Rebolledo-Mendez, G., Baker, R.S.J.d., du Boulay, B., Sugay, J.O., Lim, S.A.L., Espejo-Lahoz, M.B., Luckin, R. (2008) The Effects of Motivational Modeling on Affect in an Intelligent Tutoring System. *Proceedings of International Conference on Computers in Education*.

Baker, R.S.J.d. (2007) Modeling and Understanding Students’ Off-Task Behavior in Intelligent Tutoring Systems. *Proceedings of ACM CHI 2007: Computer-Human Interaction*, 1059-1068. **[Honorable Mention for Best Paper Award] (38 citations – Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Rodrigo, M.M.T., Xolocotzin, U.E. (2007) The Dynamics of Affective Transitions in Simulation Problem-Solving Environments. *Proceedings of the Second International Conference on Affective Computing and Intelligent Interaction*. **(30 citations – Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Habgood, M.P.J., Ainsworth, S.E., Corbett, A.T. (2007) Modeling the Acquisition of Fluent Skill in Educational Action Games. *Proceedings of User Modeling 2007*, 17-26.

Rodrigo, M.M.T., Baker, R.S.J.d., Lagud, M.C.V., Lim, S.A.L., Macapanpan, A.F., Pascua, S.A.M.S., Santillano, J.Q., Sevilla, L.R.S., Sugay, J.O., Tep, S., Viehland, N.J.B. (2007) Affect and Usage Choices in Simulation Problem Solving Environments. *Proceedings of Artificial Intelligence in Education 2007*, 145-152. **(30 citations - Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Corbett, A.T., Koedinger, K.R., Evenson, S.E., Roll, I., Wagner, A.Z., Naim, M., Raspat, J., Baker, D.J., Beck, J. (2006) Adapting to When Students Game an Intelligent Tutoring System. *Proceedings of the 8th International Conference on Intelligent Tutoring Systems*, 392-401. **[Won Best Paper Award] (75 citations – Google Scholar, April 30, 2012)**

Baker, R.S.J.d., Corbett, A.T., Koedinger, K.R., Roll, I. (2006) Generalizing Detection of Gaming the System Across a Tutoring Curriculum. *Proceedings of the 8th International Conference on Intelligent Tutoring Systems*, 402-411. **[Finalist for Best Paper Award]**

Roll, I., Alevan, V., McLaren, B.M., Ryu, E., Baker, R.S.J.d., Koedinger, K.R. (2006) The Help Tutor: Does Metacognitive Feedback Improve Students' Help-Seeking Actions, Skills, and Learning? *Proceedings of the 8th International Conference on Intelligent Tutoring Systems*, 360-369. **(22 citations – Google Scholar, April 30, 2012)**

Baker, R.S., Roll, I., Corbett, A.T., Koedinger, K.R. (2005) Do Performance Goals Lead Students to Game the System? *Proceedings of the International Conference on Artificial Intelligence and Education (AIED2005)*, 57-64. **[Finalist for Best Paper Award] (26 citations – Google Scholar, April 30, 2012)**

Fogarty, J., Baker, R., Hudson, S. (2005) Case Studies in the use of ROC Curve Analysis for Sensor-Based Estimates in Human Computer Interaction. *Proceedings of Graphics Interface (GI 2005)*, 129-136. **(44 citations – Google Scholar, April 30, 2012)**

Roll, R., Baker, R., Alevan, V., McLaren, B., Koedinger, K. (2005) Modeling Students' Metacognitive Errors in Two Intelligent Tutoring Systems. *Proceedings of User Modeling 2005*, 367-376. **(24 citations – Google Scholar, April 30, 2012)**

Baker, R.S., Corbett, A.T., Koedinger, K.R. (2004) Detecting Student Misuse of Intelligent Tutoring Systems. *Proceedings of the 7th International Conference on Intelligent Tutoring Systems*, 531-540. **(148 citations – Google Scholar, April 30, 2012)**

Baker, R.S., Corbett, A.T., Koedinger, K.R. (2004) Learning to Distinguish Between Representations of Data: a Cognitive Tutor That Uses Contrasting Cases. *Proceedings of the International Conference of the Learning Sciences*, 58-65.

Baker, R.S., Corbett, A.T., Koedinger, K.R., Wagner, A.Z. (2004) Off-Task Behavior in the Cognitive Tutor Classroom: When Students "Game The System". *Proceedings of ACM CHI 2004: Computer-Human Interaction*, 383-390. **(168 citations – Google Scholar, April 30, 2012)**

Baker R.S., Corbett A.T., Koedinger K.R., Schneider, M.P. (2003) A Formative Evaluation of a Tutor for Scatterplot Generation: Evidence on Difficulty Factors. *Proceedings of the International Conference on Artificial Intelligence in Education*, 107-115.

Baker R.S., Corbett A.T., Koedinger K.R. (2002) The Resilience of Overgeneralization of Knowledge about Data Representations. Paper presented at *American Educational Research Association Conference*. Available from *Education Resources Information Center (ERIC) Database*, ERIC# ED465530.

Baker R.S., Corbett A.T., Koedinger K.R. (2001) Toward a Model of Learning Data Representations. *Proceedings of the 23rd Conference of the Cognitive Science Society*, 45-50. **(27 citations – Google Scholar, April 30, 2012)**

Baker, R.S., Boilen, M., Goodrich, M., Tamassia, R., and Stibel, B.A.(1999) Testers and Visualizers for Teaching Data Structures. *30th ACM SIGCSE Technical Symposium on Computer Science Education*, 261-265. (52 citations – Google Scholar, April 30, 2012)

White Papers/Official Reports

Siemens, G., Gasevic, D., Haythornthwaite, C., Dawson, S., Shum, S.B., Ferguson, R., Duval, E., Verbert, K., Baker, R.S.J.d. (2011) Open Learning Analytics: an integrated & modularized platform: Proposal to design, implement and evaluate an open platform to integrate heterogeneous learning analytics techniques. Athabasca, Alberta, Canada: Society for Learning Analytics Research.

Woolf, B.P., Shute, V., VanLehn, K., Burleson, W., King, J.L., Suthers, D., Bredeweg, B., Luckin, R., Baker, R.S.J.d., Tonkin, E. (2010) *A Roadmap for Education Technology*. Washington, DC: Computing Community Consortium.

Woolf, B.P., Baker, R., Gianchandani, E.P. (2010) *From Data to Knowledge to Action: Enabling Personalized Education*. Washington, DC: Computing Community Consortium.

Conference Short Papers and Poster Papers

Rodrigo, M.M.T., Baker, R.S.J.d., McLaren, B., Jayme, A., Dy, T. (accepted) Development of a Workbench to Address the Educational Data Mining Bottleneck. Accepted to the *5th International Conference on Educational Data Mining*.

Soriano, J.C.A., Rodrigo, M.M.T., Baker, R.S.J.d., Ogan, A., Walker, E., Castro, M.J., Genato, R., Fontaine, S., Belmontez, R. (accepted) Effective Help-Seeking Behavior among Students Using an Intelligent Tutoring System for Math: a Cross-Cultural Comparison. Poster paper. To appear in *Proceedings of the International Conference on Intelligent Tutoring Systems*.

Roberge, D., Rojas, A., Baker, R.S.J.d. (in press) Does the Length of Time Off-Task Matter? To appear in *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge*.

Siemens, G., Baker, R.S.J.d. (in press) Learning Analytics and Educational Data Mining: Towards Communication and Collaboration. To appear in *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge*.

HersHKovitz, A., Baker, R.S.J.d., Gobert, J., Wixon, M. (2011) Goal Orientation and Changes of Carelessness over Consecutive Trials in Science Inquiry. Poster paper. *Proceedings of the 4th International Conference on Educational Data Mining*, 315-316.

Walker, E., Ogan, A., Baker, R.S.J.d., de Carvalho, A., Laurentino, T., Rebolledo-Mendez, G., Castro, M.J. (2011) Observations of Collaboration in Cognitive Tutor Use in Latin America. Poster paper. *Proceedings of the 15th International Conference on Artificial Intelligence in Education*, 575-577.

HersHKovitz, A., Wixon, M., Baker, R.S.J.d., Gobert, J., Sao Pedro, M. (2011) Carelessness and Goal Orientation in a Science Microworld. Poster paper. *Proceedings of the 15th International Conference on Artificial Intelligence in Education*, 462-465.

Stamper, J., Koedinger, K., Baker, R., Skogsholm, A., Leber, B., Demi, S., Yu, S., Spencer, D. (2011) Managing the Educational Dataset Lifecycle with Datashop. Poster paper. *Proceedings of the 15th International Conference on Artificial Intelligence in Education*, 557-559.

Rodrigo, M.M.T., Baker, R.S.J.d., Nabos, J. (2010) The Relationships Between Sequences of Affective States and Learner Achievement. *Proceedings of ICCE 2010, the 18th International Conference on Computers in Education*.

Rodrigo, M.M.T., Baker, R.S.J.d., Agapito, J., Nabos, J., Repalam, M.C., Reyes, S.S. (2010) Comparing Disengaged Behavior within a Cognitive Tutor in the USA and Philippines. *Proceedings of the 10th Annual Conference on Intelligent Tutoring Systems*, 263-265.

Giguere, S., Beck, J., Baker, R. (2010) Analyzing Student Gaming with Bayesian Networks. *Proceedings of the 10th Annual Conference on Intelligent Tutoring Systems*, 321-323.

Baker, R.S., Corbett, A., Koedinger, K., Roll, I. (2005) Detecting When Students Game The System, Across Tutor Subjects and Classroom Cohorts. *Proceedings of User Modeling 2005*, 220-224.

Baker, R.S., Wagner, A.Z., Corbett, A.T., Koedinger, K.R. (2004) The Social Role of Technical Personnel in the Deployment of Intelligent Tutoring Systems. *Proceedings of 7th International Conference on Intelligent Tutoring Systems*, 785-787.

Roll, I., Baker, R.S., Aleven, V., Koedinger, K.R. (2004) A Metacognitive ACT-R model of Students' Learning Strategies in Intelligent Tutoring Systems. *Proceedings of 7th International Conference on Intelligent Tutoring Systems*, 854-856.

Roll, I., Baker, R.S., Aleven, V., Koedinger, K.R. (2004) What goals do students have when choosing the actions they perform? *Proceedings of 6th International Conference on Cognitive Modeling*, 380-381.

Dabbish L.A., Baker R.S. (2003) Administrative Assistants as Interruption Mediators. *ACM CHI: Computer-Human Interaction*, 1020-1021.

Edited Books

Romero, C., Ventura, S., Pechenizkiy, M., Baker, R.S.J.d. (Eds.) (2010) *Handbook of Educational Data Mining*. Boca Raton, FL: CRC Press.

Edited Proceedings

Baker, R.S.J.d., Merceron, A., Pavlik, P.I. (Eds.) (2010) *Educational Data Mining 2010: 3rd International Conference on Educational Data Mining, Proceedings*. Pittsburgh, PA, USA. June 2010.

Baker, R.S.J.d., Barnes, T., Beck, J.E. (Eds.) (2008) *Educational Data Mining 2008: 1st International Conference on Educational Data Mining, Proceedings*. Montreal, Quebec, Canada. June 2008.

Baker, R.S.J.d., Beck, J., Berendt, B., Kroner, A., Menasalvas, E., Weibelzahl, S. (Eds.) (2007) *Complete On-Line Proceedings of the Workshop on Data Mining for User Modeling, at the 11th International Conference on User Modeling (UM 2007)*. Corfu, Greece. June 2007.

Heiner, C., Baker, R., Yacef, K. (Eds.) (2006) *Proceedings of the Workshop on Educational Data Mining, at the 8th International Conference on Intelligent Tutoring Systems*. Jhongli, Taiwan. July 2006.

Technical Reports

Porayska-Pomsta, K., Mavrikis, M., D'Mello, S., Conati, C., Baker, R. (2011) Contemporary Methods for Affect-Related Knowledge Discovery and Emotion Measurement in Learning. *Cognitive Science Research Paper*, Department of Informatics, University of Sussex.

Baker, R.S., Wagner, A.Z., Corbett, A.T., Koedinger, K.R. (2004) The Social Role of Technical Personnel in the Deployment of Intelligent Tutoring Systems. *CMU Technical Report CMU-HCII-04-100*, July 2004.

Workshop Papers/Presentations

Gowda, S., Baker, R.S.J.d., Pardos, Z., Heffernan, N. (2011) The Sum is Greater than the Parts: Ensembling Student Knowledge Models in ASSISTments. *Proceedings of the KDD 2011 Workshop on KDD in Educational Data*.

Baker, R.S.J.d. (2007) Is Gaming the System State-or-Trait? Educational Data Mining Through the Multi-Contextual Application of a Validated Behavioral Model. *Complete On-Line Proceedings of the Workshop on Data Mining for User Modeling at the 11th International Conference on User Modeling 2007*, 76-80.

Baker, R.S.J.d., Corbett, A.T., Wagner, A.Z. (2006) Human Classification of Low-Fidelity Replays of Student Actions. *Proceedings of the Workshop on Educational Data Mining at the 8th International Conference on Intelligent Tutoring Systems*, 29-36. **(21 citations - Google Scholar, April 30, 2012)**

Theses

Baker, R.S. (2005) Designing Intelligent Tutors That Adapt to When Students Game the System. Doctoral Dissertation. Advisors: Kenneth R. Koedinger, Albert T. Corbett

Baker, R.S. (2000) PILOT: An Interactive Tool for Learning and Grading. Senior Honors Thesis, Brown University. Advisors: Roberto Tamassia, Thomas Dean.

Other Participation at Workshops or Conferences

Baker, R.S.J.d. (2011) Tracking Student Engagement during Learning from Educational Software. Invited presentation at the Massachusetts STEM Summit.

Gobert, J.D., Baker, R.S.J.d., Sao Pedro, M. (2011) Using Machine-Learned Detectors to Assess and Predict Students' Inquiry Performance. Presentation at the 2011 Fall Meeting of the Society for Research on Educational Effectiveness.

Baker, R.S.J.d. (2011) Observational and Log Analysis Methods for Assessing Engagement and Affect in Educational Games. Presentation at Games for Learning Day at Games For Change 2011.

Hausmann, R.G.M., Youngblood, M., Lane, H.C., Baker, R.S.J.d. (2011) Game-Based Intelligent Tutoring Systems. Panel session at FLAIRS-24.

Castro, M.J., Cárdenas, E.S., Ogan, A., Baker, R.S.J.d. (2011) Tutor Cognitivo y el incremento de aprendizaje en matemática. (Cognitive Tutors and Learning Gains in Mathematics). *CIAEM 2011: XIII Conferencia Interamericana de Educación Matemática*.

Gobert, J.D., Montalvo, O., Toto, E., Sao Pedro, M., Baker, R.S.J.d. (2010) The Science Assistments Project: Scaffolding Scientific Inquiry Skills. Interactive Event at *10th International Conference on Intelligent Tutoring Systems*. **[People's Choice Award for Best Interactive Event]**

Goldstein, A.B., Baker, R.S.J.d., Heffernan, N.T. (2010) Pinpointing Learning Moments: A finer grain P(J) model. Poster abstract. *Proceedings of the 3rd International Conference on Educational Data Mining*, 289-290.

Baker, R.S.J.d., de Carvalho, A.M.J.B., Raspat, J., Alevén, V., Corbett, A.T., Koedinger, K.R. (2010) Using Taxonomies and Educational Data Mining to Understand How Educational Software Design Impacts Gaming the System. Presentation at Symposium at the 2010 Annual Meeting of the American Educational Research Association.

Lee, D.M.C., Ramos, C.C., Sy, C.W.C., Rodrigo, M.M.T., Baker, R.S.J.d. (2010) Detecting Boredom and Confusion among Novice Programmers using BlueJ Compile Logs. Poster at Philippine Computing Society Congress 2010.

Baker, R.S., Corbett, A.T., Alevén, V. (2009) Determining when an error is actually a slip. Presentation in Educational Data Mining: Seeing How Students Really Err. Symposium at the 13th Biennial Conference of the European Association for Research on Learning and Instruction.

Rodrigo, M.M.T., Baker, R.S.J.d., Abalos, N., Bacuyag, K., Basuel, B., Bautista, M., Cortez, M., Dulla, G., Elomina, S., Gineta, M.A., Rara, A., Rodriguez, R., Sanggalang, J., Sugay, J., Tan, A.K., Tan, M., Trajano, E., Uy, F., Victorino, N., Villafior, K. (2009) A comparison of learners' affect and behaviors while using an intelligent tutor and an educational game. Presentation at Philippine Computing Society Congress 2009.

Rodrigo, M.M.T., Baker, R.S., Sugay, J.O., Tabano, E. (2009) Monitoring novice programmer affect and behaviors to identify learning bottlenecks. Presentation at Philippine Computing Society Congress 2009.

Baker, R.S.J.d., Koedinger, K.R. (2008) Educational Data Mining: Opportunities for the International Internet Classroom. Presentation at *AAAI Fall Symposium: Education Informatics: Steps Towards the International Internet Classroom*.

Baker, R.S.J.d, Alevén, V., Koedinger, K.R., Rodrigo, M., Heffernan, N.T., Corbett, A.T., Roll, I. (2008) Gaming the System: Evidence from Data Mining and Human Observation on Affect,

Attitudes, and Learning. Presentation at *Technology, Instruction, Cognition, and Learning Symposium*.

Koedinger, K.R., Alevan, V., Baker, R.S.J.d., Roll, I. (2007) Toward Understanding When Tutoring Meta-Cognition Enhances Domain Learning. *Workshop on Metacognition and Self-Regulated Learning in Intelligent Tutoring Systems*, 1-2.

Baker, R.S. (2006) Educational Data Mining. Panel “Intelligent Tutoring Scales Up!” at *8th International Conference on Intelligent Tutoring Systems*.

Koedinger, K.R., Baker, R.S. (2006) Production Systems. *Presentation at the TICL Masters Conference*.

Baker, R.S., Beck, J.S. (2005) Psychometric Machine-Learned Models. *Presentation at the Educational Data Mining Workshop at the annual meeting of the American Association for Artificial Intelligence*.

Rosé, C.P., Anthony, L., Baker, R.S., Corbett, A.T., Pain, H., Porayska-Pomsta, K. (2004) Towards Encouraging a Learning Orientation Above a Performance Orientation. Panel at *7th International Conference on Intelligent Tutoring Systems*, 907.

Baker, R.S., Corbett, A.T., Koedinger, K.R. (2003) Statistical Techniques For Comparing ACT-R Models of Cognitive Performance. *Proceedings of the 10th Annual ACT-R Workshop*, 129-134.

Baker R.S., Corbett A.T., Koedinger K.R. (2002) Distinct Errors Arising From a Single Misconception. Published as abstract, *Proceedings of the Cognitive Science Society Conference*, 990.

Baker R., Parberry I. (1996) Increasing Frame Rate In An Interactive Sprite Engine. Published as abstract, *Texas Academy of Science Conference*.

Other Publications

Baker, R.S.J.d. (2011). Guessing and Learning. In N.M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 1397-1398). Heidelberg, Germany: Springer-Verlag.

Baker, R.S.J.d. (2011). Guessing Model. In N.M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 1398-1399). Heidelberg, Germany: Springer-Verlag.

INVITED SEMINARS/CONFERENCE PLENARY TALKS

Educational Data Mining Methods for Modeling and Studying Gaming the System in Educational Software. ETS. April 24, 2012.

Studying Student Disengagement and the Robustness of Learning with Educational Data Mining. BBN Technologies, Cambridge, Massachusetts. February 3, 2012.

Towards Automatically Detecting the Robustness of Student Learning. AAALab/LIFE Center, School of Education, Stanford University, September 30, 2011.

Towards Automatically Detecting the Robustness of Student Learning. Pittsburgh Science of Learning Center Colloquium, Carnegie Mellon University, May 23, 2011.

Towards Automatically Detecting the Robustness of Student Learning. Invited Talk, Intelligent Tutoring Systems Track. 24th Florida Artificial Intelligence Research Society Conference. Palm Beach, Florida. May 19, 2011.

Using Educational Data Mining to Detect Disengagement and the Moment of Student Learning. Teachers College, Columbia University. March 23, 2011

Using Educational Data Mining to Detect the Moment of Student Learning. 11th Philippine Computing Science Congress (PCSC2011). Naga, Bicol, Philippines. March 4, 2011.

Using Educational Data Mining to Detect the Moment of Student Learning. Department of Computer Science, University of the Philippines Diliman. February 28, 2011.

Educational Data Mining: A Revolution in Methods for Understanding Learners and Learning. University of Veracruz, Mexico (by videoconference). May 28, 2010.

Intelligent Tutoring Goes to School in the Big City... and the Suburbs... and the Countryside... and right here in Metro Manila! College of Computer Studies, De La Salle University – Manila, Philippines. April 8, 2010.

Intelligent Tutoring Goes to School in the Big City... and the Suburbs... and the Countryside... and the Developing World Mega-City. Department of Computer Science, University of Massachusetts Amherst. February 25, 2010.

Educational Data Mining: A Revolution in Methods for Understanding Learners and Learning. Science Colloquium Series, Colgate University. November 20, 2009.

Interface design, affect, and students' choice to "game the system". BostonCHI: The New England area chapter of ACM SIGCHI. September 8, 2009.

Towards Understanding Why Students "Game the System" Within Educational Software. Institute for Intelligent Systems, University of Memphis. March 12, 2009.

Towards Understanding Why Students Game the System. Department of Educational and Counseling Psychology, McGill University. June 18, 2008.

Using Data Mining to Better Understand Learning and Learners: Key Challenges and Directions. Department of Computer Science, University of Sherbooke. June 17, 2008.

Detecting and Responding to Gaming the System in Cognitive Tutors. Carnegie Learning, Inc. April 3, 2008.

Towards Educational Software that Detects and Responds to All the Ways Students Choose to Use It. Department of Computer Science, Worcester Polytechnic Institute. September 14, 2007.

Detecting and Understanding Gaming the System and Off-Task Behavior in Intelligent Tutoring Systems. London Knowledge Lab, University of London. April 26, 2007.

Developing Systems that Detect and Adapt to When Students Game the System. Human-Centered Technology Group, School of Informatics, University of Sussex. November 2, 2006.

Developing Systems that Detect and Adapt to When Students Game the System. School of Informatics, University of Edinburgh. October 27, 2006.

Scooter: an Agent Who Adapts to When Students Game the System. Mixed Reality Laboratory, School of Computer Science, University of Nottingham. October 20, 2006.

Gaming the System: How it Affects Learning and Why Students Do It. Pädagogische Psychologie Group, Department of Psychology, University of Muenster. July 14, 2005.

Remediating Resilient Overgeneralization in Data Representation. Pittsburgh Supergroup for Scientific Reasoning, University of Pittsburgh. October 10, 2003.

A model of resilient overgeneralization: When you know bar graphs, all data looks categorical. UIC Cognitive Brown Bag Lecture, University of Illinois at Chicago. November 20, 2001.

ADVISING

Doctoral Advisor. Maria “Sweet” San Pedro (co-advisor: Neil Heffernan). Ph.D. student in Learning Science at Worcester Polytechnic Institute (in process).

Honorary Doctoral Thesis Co-Chair. Gustavo Padron Rivera (Primary Chair: Genaro Rebolledo-Mendez). Department of Computer Science and Informatics, Universidad Veracruzana, Xalapa, Veracruz, Mexico (in process).

Honorary Doctoral Thesis Co-Chair. David Nadler Prata (Primary Chair: Evandro Barros Costa). Computer Science Department, Universidade Federal de Campina Grande, Campina Grande, Brazil. Graduated 2008.

Post-Doctoral Mentor. Arnon Hershkovitz (co-advisor: Janice Gobert). Post-doctoral fellow in Learning Science at Worcester Polytechnic Institute (in process).

Masters Advisor. Michael Wixon. (co-advisor: Janice Gobert). M.S. student in Learning Science at Worcester Polytechnic Institute (in process).

Masters Advisor. Zakkai Rogoff. (co-advisor: Janice Gobert). M.S. student in Learning Science at Worcester Polytechnic Institute (in process).

Masters Advisor. Adam Nakama. M.S. student in Learning Science at Worcester Polytechnic Institute (in process).

Masters Advisor. Adam Goldstein. (co-advisor: Neil Heffernan). M.S. student in Computer Science at Worcester Polytechnic Institute. Graduated 2011.

Doctoral Thesis Committee Member. Zachary Pardos (thesis chair: Neil Heffernan). Ph.D. student in Computer Science at Worcester Polytechnic Institute. Graduated 2012.

Doctoral Thesis Committee Member. Michael Sao Pedro (thesis chair: Janice Gobert). Ph.D. student in Learning Sciences and Technologies at Worcester Polytechnic Institute. (in process)

Doctoral Thesis Committee Member. Dovan Rai (thesis chair: Joseph Beck). Ph.D. student in Computer Science at Worcester Polytechnic Institute. (in process)

Doctoral Thesis Committee Member. Samuel Abramovich (thesis chair: Christian Schunn). Ph.D. student in Learning Science and Policy at University of Pittsburgh. (in process)

Doctoral Thesis Committee Member. Karrie Godwin (thesis chair: Anna Fisher). Ph.D. student in Psychology at Carnegie Mellon University. (in process)

Doctoral Thesis Committee Member. Elizabeth Anglo (thesis chair: Mercedes Rodrigo). Ph.D. student in Computer Science at Ateneo de Manila University. (in process)

Masters Thesis Committee Member. Jose Carlos Soriano (thesis chair: Mercedes Rodrigo) M.S. student in Computer Science at Ateneo de Manila University. Graduated 2012.

Masters Thesis Committee Member. Diane Lee (thesis chair: Mercedes Rodrigo) M.S. student in Computer Science at Ateneo de Manila University. Graduated 2011.

Masters Thesis Committee Member. Maria O.C.Z. San Pedro (thesis chair: Mercedes Rodrigo) M.S. student in Computer Science at Ateneo de Manila University. Graduated 2010.

Masters Thesis Committee Member. Karina Hizon (thesis chair: Mercedes Rodrigo) M.S. student in Computer Science at Ateneo de Manila University. Graduated 2009.

Undergraduate Major Qualifying Project (WPI). Kristin Hughes (2010)

Undergraduate Interactive Qualifying Project (WPI). Anthony Rojas & Daniel Roberge (2011), Gregory Moore (2011), Breanna McElroy & Mohammad Alshuqaiq (2011), Ryan Genato & Samantha Fontaine & Ricardo Belmontez (2011), Ethan Wolfe & James Salvati (2010-2011), Sean Burke & Michael Ducey & Sindi Silaj (2010)

Independent Study Projects (WPI). Michael Tidd (2011), Adam Nakama (2010), Dovan Rai (2010)

Undergraduate Research Assistantships, Summer Internships, Summer Research Fellowships (WPI, 2009-present): Gregory Moore, Ravi Raval, Milan Desai, Robert Le, Meng Sun, Andrew Tremblay

Undergraduate Research Assistantships, Summer Internships, Summer Research Fellowships (CMU, 2006-2008): Owen Durni, Matthew Morrill, Brian Thompson

External Examiner. Lichao Li (M.S. student in Information Technologies at University of Sydney). 2007.

OTHER TEACHING EXPERIENCE

Tutorial. Graesser, A., Baker, R.S.J.d., Beck, J.E. (2011) A Workshop on Adaptive Learning Systems: A Pre-Conference Workshop of the Philippine Computing Science Congress 2011. Naga, Bicol, Philippines.

Tutorial. Baker, R.S.J.d., Rodrigo, M.M.T. (2010) Toward the adaptive classroom: Emerging educational data mining methods for scientific discovery in education. Workshop in Philippines for Engineering Research and Development for Technology Consortium. Held at Ateneo de Manila University.

Instructor. Pittsburgh Science of Learning Center Summer School. Head, Educational Data Mining track. Summer 2010.

Tutorial. Baker, R.S.J.d., Yacef, K., Beck, J.E., Koedinger, K.R. (2009) Educational Data Mining. Tutorial at Artificial Intelligence in Education 2009.

Instructor. Pittsburgh Science of Learning Center Summer School. Co-head, Educational Data Mining track (with Kenneth R. Koedinger). Summer 2009.

Instructor. Pittsburgh Science of Learning Center Summer School. Co-head, Data Mining with DataShop track (with Kenneth R. Koedinger). Summer 2008.

Teaching Assistant. Cognitive Modeling and Intelligent Tutoring Systems, Professor Kenneth R. Koedinger. Human-Computer Interaction Institute, Carnegie Mellon University. Spring 2001.

Teaching Assistant. Advanced Algorithms, Professor Franco Preparata. Department of Computer Science, Brown University. Fall 1999.

Head Teaching Assistant. Data Structures and Algorithms, Professor Roberto Tamassia. Department of Computer Science, Brown University. Spring 1999.

Teaching Assistant. Data Structures and Algorithms, Professor Roberto Tamassia. Department of Computer Science, Brown University. Spring 1998.

Teaching Assistant. Intensive Algebra II Course. Intensive Mathematics Institute, Denton, TX. Summer 1996.

CONSULTING

Wireless Generation, Inc. 2012.

Engineering Research and Development for Technology Consortium, Philippines. Development of an Educational Data Mining Workbench. For Rodrigo, M.M.T. (Project Lead), Ateneo de Manila University. 2011 - 2013.

LearnBop, Inc. 2011 - 2012.

SRI International. Educational Data Mining Technical Working Group, led by Marie Bienkowski, 2011.

University of Colorado, Boulder. NSF Inquiry Hub project, led by Tamara Sumner, William Penuel. 2011-2015.

NIXTY. 2011.

Math360/Math Series Advisory Board, Carnegie Learning, Inc. 2009-2011.

Engineering Research and Development for Technology Consortium, Philippines.
Multidimensional Analysis of User-Machine Interactions Towards the Development of Models of Affect. For Rodrigo, M.M.T. (Project Lead), Ateneo de Manila University. 2008 - 2010.

Majestic Mountain, LLC. 2009.

McGraw-Hill. For Evenson, S.E. (Project Lead), Cherryhawk Communications. 2005.

ACADEMIC SERVICE AT DEPARTMENT AND UNIVERSITY LEVEL

Learning Outcomes Coordinator. Department of Social Science and Policy Studies, Worcester Polytechnic Institute, 2010-present.

Graduate Committee. Department of Social Science and Policy Studies, Worcester Polytechnic Institute, 2009-present.

Faculty Review Committee. Worcester Polytechnic Institute, 2010-2011.

Seminar Co-Organizer. (with Sandra Katz) Pittsburgh Science of Learning Center. Carnegie Mellon University/ University of Pittsburgh. 2008.

Seminar Co-Organizer. Research and Publication Reading Group. Learning Sciences Research Institute. University of Nottingham. 2006-2007.

Seminar Organizer. Human-Computer Interaction Institute PhD lunches. 2002-2004.

ACADEMIC SERVICE TO THE BROADER RESEARCH COMMUNITY

President. *International Educational Data Mining Society.* 2011-Present.

Associate Editor. *Journal of Educational Data Mining.* 2008-Present.

Conference Chair. *Third International Conference on Educational Data Mining.* Pittsburgh, PA, USA. June 11-13 2010.

Program Chair (with Joseph E. Beck). *First International Conference on Educational Data Mining,* Montreal, Canada, June 20-21, 2008.

Workshop Co-Chair. Workshop on Data Mining for User Modeling. *11th International Conference on User Modeling.* 2007.

Workshop Co-Chair. Workshop on Educational Data Mining. 8th *International Conference on Intelligent Tutoring Systems*. 2006.

Board of Directors. International Educational Data Mining Society. 2012-present.

Steering Committee. International Conference on Educational Data Mining (EDM) series/
International Educational Data Mining Society. 2006-2011.

Executive Committee. International Artificial Intelligence in Education Society. 2011-present.

Steering Committee. Learning Analytics and Knowledge Conference / Society for Learning Analytics Research, 2011-present.

Board of Special Reviewers. User Modeling and User-Adapted Interaction. 2010-present.

Program Committee. Intelligent Tutoring Systems (2012, 2010 – senior PC, 2008 – regular PC) (Named Outstanding Reviewer in 2010)
User Modeling and Adaptive Personalization (2012, 2011, 2010, 2009)
Learning Analytics (2012, 2011)
Digital Game and Intelligent Toy Enhanced Learning (2012, 2010, 2009, 2007)
Flairs Special Track on Intelligent Tutoring Systems (2012, 2011, 2010, 2009, 2008)
Educational Data Mining (2012, 2011, 2010, 2009)
Interactive Virtual Agents (2012)
Artificial Intelligence and Education (2011 – senior PC, 2009)
Intelligent User Interfaces (2011)
International Joint Conference on Artificial Intelligence (2011)
Flairs Special Track on Affective Computing (2011)
Affective Computing and Intelligent Interaction (2011)
ACM Symposium on Applied Computing Track on Intelligent, Interactive, and Innovative Learning Environments (2011)
ICCE Conference on AIED/ITS & Adaptive Learning (2010, 2009, 2008)
User Modeling (2007)
Workshop on Intelligent Support for Learning in Groups, ITS (2012)
Workshop on Self-Regulated Learning in Educational Technologies, ITS (2012)
Workshop on Sentiment Discovery from Affective Data, ECML/PKDD (2012)
Workshop on Knowledge Discovery in Educational Data (2011)
International Workshop on Empathic Computing (2011)
International Workshop on Intelligent Support in Exploratory Environments, ECTEL (2010, 2008), AIED (2009), ICLS (2010)
Workshop on Closing the Affective Loop in Intelligent Learning Environments, AIED (2009)
Workshop on Emotional and Cognitive Issues in ITS, ITS (2008)
International Workshop on Metacognition and Self-Regulated Learning in ITS, ITS (2008)
Workshop on Education Informatics, ECAI (2008)

Workshop on Educational Data Mining, ICALT (2007)
Workshop on Educational Data Mining, AIED (2007)
International Workshop on Applying Data Mining in e-Learning,
EC-TEL (2007)
Workshop on Metacognition and Self-Regulated Learning in
Intelligent Tutoring Systems, AIED (2007)

Other Conference Reviewing.

Computer-Human Interaction (2012, 2009, 2008, 2007)
American Educational Research Association (2012, 2010, 2009, 2003)
Learning Sciences (2012 – senior reviewer, 2010)
Cognitive Science Society (2012, 2011, 2007, 2005, 2003)
Intelligent Tutoring Systems (2008, 2006, 2002)
Computers in Education (2008, 2006)
Artificial Intelligence in Education (2007, 2005, 2003)
Intelligent User Interfaces (2008)
User Modeling (2007, 2003)
User Interface Software and Technology (2007)
Digital Game and Intelligent Toy Enhanced Learning (2007)
Cognitive Modeling (2004)
European Cognitive Science Society (2003)
Learning Sciences Conference (2002)
Workshop on Social and Emotional Intelligence in Learning
Environments, ITS (2004)

Journal Reviewing.

International Journal of Human-Computer Studies (2012, 2011)
Teachers College Record (2012)
IEEE Transactions on Learning Technologies (2012, 2011, 2010, 2009,
2008)
ACM Transactions on Interactive Intelligent Systems (2012)
Journal of Educational and Behavioral Statistics (2012)
Journal of Educational Computing Research (2012, 2011)
IEEE Transactions on Systems, Man, and Cybernetics (2012, 2010)
Journal of the Learning Sciences (2012, 2009)
Computers and Education (2011)
Journal of Computer Assisted Learning (2011, 2008, 2007)
Journal of Intelligent Information Systems (2011)
Journal of Intelligent Information Systems (2011)
User Modeling and User-Adapted Interaction (2010, 2008, 2007, 2006)
International Journal of Artificial Intelligence in Education (2010,2006)
The Internet and Higher Education (2010)
Artificial Intelligence Journal (2008)
ACM Transactions on the Web (2007)
Journal of Visual Languages and Computing (2007)
Cognition and Instruction (2006)

Book Reviewing.

Oxford University Press (2011)

Workshop Organizing Committee. Workshop on Analyzing Student-Tutor Interaction Logs to
Improve Educational Outcomes. 7th *International Conference on Intelligent Tutoring Systems*.
Chair: Joseph Beck. 2004.

Grant Reviewing.

Israel Science Foundation (2012)

NSF Social, Behavioral, and Economic Sciences (SBE) (2011)

NSF Computer & Information Science & Engineering (CISE) (2011,
2010, 2009)

NSF Education & Human Resources (EHR) (2011)