Elizabeth Sklar, Ph.D.

Dept of Computer and Information Science, Brooklyn College of the City University of New York
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EDUCATION

Brandeis University, Ph.D., May 2000, Computer Science.

Brandeis University, M.A., May 1997, Computer Science.

Barnard College, Columbia University, B.A., May 1985, Computer Science / English.

EXPERIENCE

Brooklyn College, City University of New York, Dept of Computer and Information Science,
Graduate Center, City University of New York, Dept of Computer Science,
Brooklyn, NY, July 2005–present: Professor (as of August 2013); Associate Professor (January 2008–present, with tenure as of September 2008); Assistant Professor (July 2005–December 2007).
Director of Multimedia Computing program, July 2009–present.
Undergraduate Deputy Chair, July 2009–2010.

Columbia University, Computer Science Department
New York, NY. Assistant Professor (non-tenure track), July 2001 – July 2005.

Boston College, Computer Science Department
Chestnut Hill, MA. Visiting Assistant Professor, September 2000 – July 2001.

Brandeis University, Department of Computer Science
Waltham, MA. Visiting Research Associate, April 2000 – September 2001.

University of Melbourne, Department of Computer Science and Software Engineering
Victoria, Australia. Visiting Researcher, June 2000 – September 2000.

Monash University, Department of Computer Science and Software Engineering
Victoria, Australia. Sessional Lecturer, June 2000 – September 2000.

Brandeis University, Department of Computer Science
Waltham, MA. Doctoral Student, September 1995 – May 2000.
Dissertation title: *CEL: A Framework for Enabling an Internet Learning Community.*

MIT / Lincoln Laboratory
Lexington MA. Assistant Staff, June 1985 – August 1987, May 1991 – July 1997.
Led effort to port real-time software system to UNIX. Led effort to build and document software library, information system and configuration control package to promote source code sharing. Designed, implemented and documented multiple projects: satellite tracking software system; operator interface, record-keeping and scheduling software for experimental space-based optical (SBV) sensor; data processing software for radar measurements project; real-time classified communications software. Mentored summer students.

GTE Government Systems
Research Triangle Park, NC. Member of Technical Staff, December 1987 – August 1989.
Led effort to re-host existing network planning software to a graphics environment. Developed and implemented PC-based military communications software.

Freelance Consultant
Raleigh, NC. September 1987 – November 1987, September 1989 – April 1991.
Designed and implemented retail business software and medical laboratory database software. Audited insurance company database system. Tutored computer science undergraduates.

GRANTS AND CONTRACTS

- *Network Science, Collaborative Technology Alliance*, with task team members: PI Simon Parsons (CUNY Brooklyn College), Co-PI Karl N. Levitt (University of California-Davis), Co-PI Munindar Singh (North Carolina State University), Senior Personnel Jeffery Rowe (University of California-Davis), Senior Personnel Jennifer Mangels (CUNY Baruch College), and Senior Personnel Elizabeth Sklar, Army Research Laboratory, CUNY Brooklyn College portion $117,810, 10/2012–9/2013.
- *REU Site: Academic-year Robotics Research for Urban Public College Students*, PI Elizabeth Sklar, Co-PI Simon Parsons (CUNY Brooklyn College), NSF CNS #11-56827, $62,500, 2012-2013.
- *AAAI/SIGART 2012 Doctoral Consortium*, PI Elizabeth Sklar, Co-PI Peter McBurney (Kings College, London, UK), NSF IIS #12-31683, $20,631, 2012.
- *NSF REU Supplement to RI: Small: Collaborative Research: Learning to perform consistently in human/multi-robot teams*, PI Elizabeth Sklar, NSF IIS #11-16843, $15,000, 2/2012-7/2014.
- *RI: Small: Collaborative Research: Learning to perform consistently in human/multi-robot teams*, PI Elizabeth Sklar, Co-PI Susan L. Epstein (CUNY Hunter College), Co-PI Simon Parsons (CUNY Brooklyn College), NSF IIS #11-17000, $489,799 (CUNY Brooklyn College award $298,387), 8/2011–7/2014.
- *TC: Small: Collaborative Research: An Argumentation-based Framework for Security Management*, PI Karl N. Levitt (University of California-Davis), Co-PI Jeffery Rowe (University of California-Davis), Co-PI Simon Parsons (CUNY Brooklyn College), Co-PI Elizabeth Sklar, NSF CNS #11-17761, $498,618 (CUNY Brooklyn College award $249,596), 8/2011–7/2014.
- *Experimentation in Human/Multi-robot Teamwork*, PI Elizabeth Sklar, PSC-CUNY Award #64630-00-42, $5,997.26, 2011–12.
- *AAAI/SIGART 2011 Doctoral Consortium*, PI Bradley Clement (Jet Propulsion Laboratory, NASA), Co-PI Elizabeth Sklar, NSF IIS #11-25978, $20,340, 2011.
- NSF REU Supplement to *CPATH EAE: Extending contextualized computing in multiple institutions using Threads*, PI Elizabeth Sklar, IIS #10-36367, $14,000, 2010.
- *Shared Decision Making for Collaborative Exploration*, PI Elizabeth Sklar, Co-PI Susan L. Epstein (CUNY Hunter College), CUNY Collaborative Incentive Research Grants Award #1642, $57,340, 9/2009–8/2011.
- *Network Science, Collaborative Technology Alliance*, with task team members: PI Simon Parsons (CUNY Brooklyn College), Co-PI Karl N. Levitt (University of California-Davis), Co-PI Munindar Singh (North Carolina State University), Senior Personnel Jeffery Rowe (University of California-Davis), and Senior Personnel Elizabeth Sklar, Army Research Laboratory, CUNY Brooklyn College portion $153,798, 9/2009–9/2012.

- *REU Site: MetroBotics: undergraduate robot research at an urban public college*, PI Elizabeth Sklar, Co-PI Simon Parsons (CUNY Brooklyn College), NSF CNS #08-51901, $345,000, 7/2009–6/2013.
- NSF REU Supplement to *BPC-DP: Building a Bridge in Brooklyn*, PI Elizabeth Sklar, CNS #09-39599, $12,500, 2009.
- *Mechanism Design for Educational Interactivities*, PI Elizabeth Sklar, PSC-CUNY Award #62358-00 40, $1,980, 7/2009–7/2010.
- NSF REU Supplement to *BPC-DP: Building a Bridge in Brooklyn*, PI Elizabeth Sklar, CNS #08-32295, $12,500, 2008.
- *Robots in the Classroom*, Institute for Personal Robotics (IPRE) / Georgia Institute of Technology, PI Elizabeth Sklar, $8,000, 6/2008–6/2009.
- *CPATH EAE: Extending contextualized computing in multiple institutions using Threads*, PI Charles Isbell (Georgia Institute of Technology), Co-PI Jill Auerbach (Georgia Institute of Technology), Co-PI Maureen S Biggers (Georgia Institute of Technology), Co-PI Merrick L Furst (Georgia Institute of Technology), Co-PI Ju A Wang (Southern Polytechnic State University), Co-PI Patrick O Bobbie (Southern Polytechnic State University), Co-PI Chih Cheng Hung (Southern Polytechnic State University), Co-PI Elizabeth Sklar, Co-PI Ira Rudowsky (CUNY Brooklyn College), Co-PI Gerald Weiss (CUNY Brooklyn College), Co-PI Ashraf Saad (Armstrong Atlantic State University), Co-PI Pamila Dembla (Kennesaw State University), and Co-PI Jose M Garrido (Kennesaw State University), NSF CPATH #07-22177, $889,580 (CUNY Brooklyn College award $165,600), 10/2007–9/2011.
- *SBIR Phase II: Early Childhood Assessment and Intervention within a Community*, PI Christopher Chamacho (Children's Progress Inc.), Co-PI Elizabeth Sklar, Small Business Innovation Research Program, US Dept of Education SBIR #ED-07-R-0006, $750,000 (CUNY Brooklyn College subaward $107,976, 6/2007–7/2008), 5/2007–4/2009.
- *STTR Phase I: Academic Assessment within a Community of Evolving Learners*, PI Elizabeth Sklar, Co-PI Christopher Camacho (Children's Progress Inc.), Small Business Technology Transfer Program, NSF IIP #06-37713, $149,680 (phase I) + $50,000 (phase I-B) (CUNY Brooklyn College subaward $105,712, 1/2007–6/2008), 1/2007–6/2008.
- NSF REU Supplement to *BPC-DP: Building a Bridge in Brooklyn*, PI Elizabeth Sklar, CNS #07-33496, $12,500, 2007.
- *Developing a STEM Curriculum for Early College Programs: A High School to College Continuum*, PI Chaya Gurwitz (CUNY Brooklyn College), Co-PI Jennifer Basil (CUNY Brooklyn College), Co-PI Sophia Perdikaris (CUNY Brooklyn College), Co-PI Theodore Raphan (CUNY Brooklyn College), Co-PI Elizabeth Sklar, NSF CCLI #06-33497, $149,966, 5/2007–4/2009.
  (Note: Though I helped write the proposal for this project and was involved early on, I withdrew from participation in July 2007 due to over-commitment to other projects and currently serve in an advisory role.)
- *Development of Assessment Technologies for Early Childhood: Phase I*, PI Christopher Camacho (Children's Progress Inc.), Co-PI Elizabeth Sklar, Small Business Innovation Research Program, US Dept of Education SBIR #ED-06-PO-0895, $100,000, 6/2006–12/2006.
- *Studies in Interaction-based Learning*, PI Elizabeth Sklar, PSC-CUNY Award #68525-00-37, $3,175, 7/2006–12/2006.
- *Educational Robotics Program: Introduction to LEGO Robotics*, PI Joshua Koen (Passaic School District, Passaic, NJ) / Dept of Education GEAR-UP #P334A050232, sub-award PI Elizabeth Sklar, subcontract $11,255, 2006.

- NSF REU Supplement to *ITR: Evaluating education — what are we measuring and how?* PI Elizabeth Sklar, ITR #06-29238, $12,500, 2006.

- *BPC-DP: Building a Bridge in Brooklyn*, PI Elizabeth Sklar, Co-PI Ira Rudowsky (CUNY Brooklyn College), Co-PI Samir Chopra (CUNY Brooklyn College), Co-PI Simon Parsons (CUNY Brooklyn College), NSF BPC #05-40549, $500,000, 3/2006–5/2011.
  (Note: Originally, Lori Scarlatos was the PI on this project, but she left CUNY in Fall 2006, at which time my role shifted from Co-PI to PI.)

- *A Multiagent Simulation Approach to Educational Assessment*, sub-award PI Elizabeth Sklar, CISDD NSF-PFI NSF #PFI-03-32596 (sub-award), $14,514, 2005–2006.

- *Track 2, GK12: Technology Integration Partnerships: Bringing Emerging STEM Research into Grades 5-12 enabled by New Technologies*, PI Jack McGourty (Columbia University), Co-PI Susan Lowes (Teachers College) Co-PI Elizabeth Sklar, NSF GK-12 #03-38329, $1,699,219, 2004–2009.
  Note: My involvement in this project ended when I left Columbia in July 2005.

- *RoboCupJunior and the ACM: A partnership for technology education*, PI Elizabeth Sklar, Association for Computing Machinery, $30,000, 2004.

- *Tools and techniques for automated mechanism design*, PI Simon Parsons (CUNY Brooklyn College), Co-PI Elizabeth Sklar, NSF IIS #03-29037, $532,453, 2003–2008.

- *Special Projects: Bridging the Gap*, PI Elizabeth Sklar, Co-PI Lillian Israel (Association for Computing Machinery), Co-PI Diane Souvaine (Tufts University), NSF CISE Special Projects #03-14231, $32,300, 2003–2004.

- NSF REU Supplement to *ITR: Evaluating education — what are we measuring and how?* PI Elizabeth Sklar, ITR #03-31744, $13,825, 2003.

- *ITR: Evaluating education — what are we measuring and how?* PI Elizabeth Sklar, NSF ITR, #02-19347/05-52294, $370,377, 2002–2007.

- *ITR: Creating One to One Learning Opportunities Across the Internet*, PI Jordan Pollack (Brandeis University), Co-PI Ann Marion (Brandeis University), Co-PI Elizabeth Sklar, NSF ITR #01-13317, subcontract $57,000, 2001–2003.

AWARDS

- Technical Innovation Award, AAAI Robot Competition & Exhibition, July 2006.
  For integration of research and education as demonstrated by the Brooklyn College Educational Robotics exhibition, by Elizabeth Sklar, Simon Parsons, M. Q. Azhar and Valerie Andrewlevich.

- CRA-W Distributed Mentorship Award, Summers 2003 and 2008.
  Through this award, which encourages female undergraduates to gain experience in research by working for the summer in the lab of a faculty member, I was able to fund two students each summer to work on research projects.

- Scientific Challenge Award, RoboCup 2002.
  For paper: *RoboCupJunior: learning with educational robotics*, by Elizabeth Sklar and Amy Eguchi and Jeffrey Johnson, Proceedings of RoboCup-2002: Robot Soccer World Cup VI.

- Best Student Paper Award, Workshop on Evolutionary Computation and Cognitive Science
  For paper: *Using an evolutionary algorithm to guide problem selection in an online educational game*, by Elizabeth Sklar and Jordan Pollack, Proceedings of the Workshop on Evolutionary Computation and Cognitive Science (ECCS-2000).

- Best Paper Nomination, Intelligent Agent Technology
  For paper: *Training Intelligent Agents Using Human Internet Data*, by Elizabeth Sklar, Alan D. Blair, Pablo Funes and Jordan Pollack, Proceedings of the First Asia-Pacific Conference on Intelligent Agent Technology (IAT-99).

PUBLICATIONS

Elizabeth Sklar, M. Q. Azhar, Simon Parsons, and Todd Flyr. A Case for Argumentation to Enable Human-Robot Collaboration (Extended Abstract). In *Proceedings of Autonomous Agents and Multiagent Systems (AAMAS)*, 2013.

A. Tuna Özgelen and **Elizabeth Sklar**. A Task Complexity Assessment Tool for Single-Operator Multi-Robot Control Scenarios (Demonstration). In *Proceedings of Autonomous Agents and Multiagent Systems (AAMAS)*, 2013.

M. Q. Azhar, Simon Parsons, and **Elizabeth Sklar**. An Argumentation-based Dialogue System for Human-Robot Collaboration (Demonstration). In *Proceedings of Autonomous Agents and Multiagent Systems (AAMAS)*, 2013.

Elizabeth Sklar, Simon Parsons, A. Tuna Özgelen, Eric Schneider, Michael Costantino, and Susan L. Epstein. HRTeam: a framework to support research on human/multi-robot interaction (Demonstration). In *Proceedings of Autonomous Agents and Multiagent Systems (AAMAS)*, 2013.

Simon Parsons, **Elizabeth Sklar**, Jordan Salvit, Holly Wall, and Zimi Li. ArgTrust: Decision making with information from sources of varying trustworthiness (Demonstration). In *Proceedings of Autonomous Agents and Multiagent Systems (AAMAS)*, 2013.

Simon Parsons, **Elizabeth Sklar**, Munindar Singh, Karl Levitt, and Jeff Rowe. An Argumentation-based Approach to Handling Trust in Distributed Decision Making. In *AAAI Spring Symposium on Trust and Autonomous Systems*, 2013.

Elizabeth Sklar, Simon Parsons, Susan L. Epstein, A. Tuna Özgelen, J. Pablo Mu noz, Farah Abbasi, Eric Schneider, and Michael Costantino. Learning to Avoid Collisions. In *AAAI 2012 Fall Symposium: Robots that Learn Interactively from Human Teachers*, 2012.

Simon Parsons, Katie Atkinson, Karen Haigh, Karl Levitt, Peter McBurney, Jeff Rowe, Munindar P. Singh, and **Elizabeth Sklar**. Argument schemes for reasoning about trust. In *Proceedings of the 4th International Conference on Computational Models of Argument*, Vienna, Austria, 2012.

Elizabeth Sklar, Simon Parsons, Susan L. Epstein, A. Tuna Özgelen, J. Pablo Muñoz, Eric Schneider, Michael Costantino, Farah Abbasi, Karen Aragon, Aisha Green, Jonathan Hernandez, Ibraheem Ibraheem, Apollo Namalu, Sahat Yalkabov, and Jenny Wan. Demonstration: Investigating Human/Multi-Robot Team Interaction. In *AAAI Robotics and Multimedia Fair*, Toronto, Canada, July 2012.

Elizabeth Sklar, A. Tuna Ozgelen, Eric Schneider, Michael Costantino, J. Pablo Munoz, Susan L. Epstein, and Simon Parsons. On Transfer from Multiagent to Multi-Robot Systems. In *Proceedings of the Workshop on Autonomous Robots and Multirobot Systems (ARMS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Valencia, Spain, June 2012.

Elizabeth Sklar. Toward a Unified Theory of Human-Agent Modeling: A Position Paper. In *Proceedings*

of the Workshop on Human-Agent Interaction Design and Models (HAIDM) at Autonomous Agents and MultiAgent Systems (AAMAS), Valencia, Spain, June 2012.

Jordan Salvit and **Elizabeth Sklar**. Modulating Agent Behavior using Human Personality Type. In *Proceedings of the Workshop on Human-Agent Interaction Design and Models (HAIDM) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Valencia, Spain, June 2012.

Sharmin Jalal, Karl N. Levitt, Jeff Rowe, **Elizabeth Sklar**, and Simon Parsons. A Model for Augmenting Trust Management using Argumentation. In *Proceedings of the Workshop on Trust in Agent Societies (TRUST) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Valencia, Spain, June 2012.

Yuqing Tang, **Elizabeth Sklar**, and Simon Parsons. An Argumentation Engine: ArgTrust. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Valencia, Spain, June 2012.

Andy Applebaum, Zimi Li, Ali Raza Syed, Karl Levitt, Simon Parsons, Jeff Rowe, and **Elizabeth Sklar**. Firewall configuration: An application of multiagent metalevel argumentation. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Valencia, Spain, June 2012.

Susan L. Epstein, Eric Schneider, A. Tuna Ozgelen, J. Pablo Munoz, Michael Costantino, Simon Parsons, and **Elizabeth Sklar**. Applying FORR to human/multi-robot teams. In *Workshop on Human-Agent-Robot Teams (HART) at the Human-Robot Interaction (HRI) conference*, Boston, MA, USA, March 2012.

Elizabeth Sklar. Extending Contextualized Computing in Multiple Institutions Using Threads: Final Project Report. Technical report, Dept of Computer and Information Science, Brooklyn College, City University of New York, January 2012.

Elizabeth Sklar. Bridges to Computing: Final Project Report. Technical report, Dept of Computer and Information Science, Brooklyn College, City University of New York, January 2012.

Yuqing Tang, Kai Cai, Peter McBurney, **Elizabeth Sklar**, and Simon Parsons. Using argumentation to reason about trust and belief. *Journal of Logic and Computation, Special Issue on Agreement Technologies*, 2012.

Arif T. Ozgelen, Michael Costantino, Adiba Ishak, Moses Kingston, Diquan Moore, Samuel Sanchez, J. Pablo Munoz, Simon Parsons, and **Elizabeth Sklar**. Approaches to Multi-robot Exploration and Localization. In *Twentieth Edition of the AAAI Robotics Workshop and Exhibition*, San Francisco, CA, USA, August 2011.

J. Pablo Munoz, Arif T. Ozgelen, and **Elizabeth Sklar**. Learning from Demonstration in Spatial Exploration. In *Twentieth Edition of the AAAI Robotics Workshop and Exhibition*, San Francisco, CA, USA, August 2011.

Simon Parsons, Yuqing Tang, Kai Cai, **Elizabeth Sklar**, and Peter McBurney. Some thoughts on using argumentation to handle trust. In *Proceedings of the 12th International Workshop on Computational Logic in Multi-Agent Systems (CLIMA) at IJCAI*, Barcelona, Spain, 2011.

Elizabeth Sklar, Chipp Jansen, Jonathan Chan, and Michael Byrd. Toward a methodology for agent-based data mining and visualization. In *Proceedings of the Seventh International Workshop on Agents and Data Mining Interaction (ADMI)*, Taipei, Taiwan, May 2011. Springer LNAI 7103.

Matthew Meyer and **Elizabeth Sklar**. When Robots aren't for Everyone—A Smorgasbord of Exploratory Computing Experiences. In *Computer Science & Information Technology Symposium*, New York, NY, USA, July 2011. ACM.

Elizabeth Sklar and M. Q. Azhar. Toward the application of argumentation to interactive learning systems. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Taipei, Taiwan, May 2011.

Simon Parsons, **Elizabeth Sklar**, and Peter McBurney. Using argumentation to reason with and about trust. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Taipei, Taiwan, May 2011.

Elizabeth Sklar, A. Tuna Ozgelen, J. Pablo Munoz, Joel Gonzalez, Mark Manashirov, Susan L. Epstein, and Simon Parsons. Designing the HRTeam Framework: Lessons Learned from a Rough-and-Ready Human/Multi-Robot Team. In *Proceedings of the Workshop on Autonomous Robots and Multirobot Systems (ARMS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, Taipei, Taiwan, May 2011.

Simon Parsons, Yuqing Tang, **Elizabeth Sklar**, Peter McBurney, and Kai Cai. Argumentation-based reasoning in agents with varying degrees of trust. In *Tenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Taipei, Taiwan, May 2011.

Elizabeth Sklar, Susan L. Epstein, Simon Parsons, Arif T. Ozgelen, J. Pablo Munoz, and Joel Gonzalez. A framework in which robots and humans help each other. In *AAAI 2011 Spring Symposium: Help Me Help You: Bridging the Gaps in Human-Agent Collaboration*, Stanford, CA, USA, March 2011.

Simon Parsons, **Elizabeth Sklar**, and Peter McBurney. A simple logical approach to reasoning with and about trust. In *Proceedings of the 10th International Symposium on Logical Formalizations of Commonsense Reasoning*, Stanford, CA, USA, March 2011. AAAI 2011 Spring Symposium.

Yuqing Tang, Kai Cai, **Elizabeth Sklar**, Peter McBurney, and Simon Parsons. A system of argumentation for reasoning about trust. In *Proceedings of the 8th European Workshop on Multi-Agent Systems*, Paris, France, December 2010.

Elizabeth Sklar, Simon Parsons, Susan Epstein, Arif T. Ozgelen, George Rabanca, Sam Anzaroot, Joel Gonzalez, Jesse Lopez, Mitch Lustig, Linda Ma, Mark Manashirov, J. Pablo Munoz, S. Bruno Salazar, and Miriam Schwartz. Developing a Framework for Team-based Robotics Research. In *Nineteenth Edition of the AAAI Robotics Workshop and Exhibition*, Atlanta, GA, USA, July 2010.

Elizabeth Sklar and Debbie Richards. Agent-based systems for human learners. *Knowledge Engineering Review*, 25(2):111–135, June 2010.

Simon Parsons, Peter McBurney, and **Elizabeth Sklar**. Reasoning about trust using argumentation: A position paper. In *Proceedings of the Workshop on Argumentation in Multiagent Systems*, Toronto, Canada, May 2010.

Jordan Salvit and **Elizabeth Sklar**. Toward a Myers-Briggs Type Indicator Model of Agent Behavior in Multiagent Teams. *Multi-Agent-Based Simulation XI, Lecture Notes in Artificial Intelligence (LNCS/LNAI)*, 6532:28–43, 2010.

Jordan Salvit and **Elizabeth Sklar**. Toward a Myers-Briggs Type Indicator Model of Agent Behavior. In *Multi-agent Based Simulation (MABS) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2010.

Ilknur Icke and **Elizabeth Sklar**. Visual Analytics: A Multi-faceted Overview. Technical Report TR-2009005, Dept of Computer Science, The Graduate Center, City University of New York, 2009.

Elizabeth Sklar and Ilknur Icke. Using simulation to evaluate data-driven agents. *Multi-agent Based Simulation IX, Lecture Notes in Artificial Intelligence*, 5269, 2009.

John Collins, Peyman Faratin, Simon Parsons, Juan A. Rodriguez-Aguilar, Norman M. Sadeh, Onn Shehory, and **Elizabeth Sklar** *(editors). Agent-Mediated Electronic Commerce and Trading Agent Design and Analysis,* LNBIP 13. Springer, 2008.

Steve Phelps, Kai Cai, Peter McBurney, Jinzhong Niu, Simon Parsons, and **Elizabeth Sklar**. Auctions, evolution, and multi-agent learning. In *Adaptive Agents and Multi-Agent Systems III (Maastricht, The Netherlands, 2007). Lecture Notes in Artificial Intelligence 4865*, pages 188–210. Springer, 2008.

Ilknur Icke and **Elizabeth Sklar**. A visualization tool for student assessments data. In *From Theory to*

Practice: Design, Vision and Visualization Workshop at Design, Vision and Visualization (Vis 08), 2008.

John Cummins, M. Q. Azhar, and **Elizabeth Sklar**. Using Surveyor SRV-1 Robots to Motivate CS1 Students. In *AAAI 2008 AI Education Colloquium*, 2008.

Ilknur Icke and **Elizabeth Sklar**. Using simulation to evaluate data-driven agent-based learning partners. In *Multi-agent Based Simulation (MABS) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2008.

Maartje Spoelstra and **Elizabeth Sklar**. Using simulation to model and understand group learning. *Agent Based Systems for Human Learning, International Transactions on Systems Science and Applications*, 4(1), 2008.

Elizabeth Sklar, Simon Parsons, Sheila Tejada, Susan Lowes, M. Q. Azhar, Samir Chopra, Richard Jansen, and Ira Rudowsky. Using artificial intelligence to help bridge students from high school to college. In *AAAI Spring Symposium on Using AI to motivate greater participation in Computer Science*, 2008.

Lori Scarlatos, Susan Lowes, **Elizabeth Sklar**, Samir Chopra, Simon Parsons, Ira Rudowsky, and Heidi Holder. Building Bridges: The 2006 Summer Institute. *Journal of Computing Sciences in Colleges*, 23(3):23–30, January 2008.

Jinzhong Niu, Kai Cai, Simon Parsons, and **Elizabeth Sklar**. Some preliminary results on the dynamic behavior of traders in multiple markets. In *Proceedings of the Workshop on Trading Agent Design and Analysis*, 2007.

Elizabeth Sklar, Ilknur Icke, Christopher Camacho, William Liu, Jordan Salvit, and Valerie Andrewlevich. Visualizing academic assessment data. In *Proceedings of the Assessment of Group and Individual Learning Through Intelligent Visualization (AGILeViz) Workshop at the Computer Supported Collaborative Learning Conference (CSCL)*, 2007.

A. Tuna Ozgelen, Joel Kammet, Marek Marcinkiewicz, Simon Parsons, and **Elizabeth Sklar**. The 2007 MetroBots Four-legged League Team Description Paper. In *RoboCup 2007: Robot Soccer World Cup XI*, 2007.

Yuqing Tang, Simon Parsons, and **Elizabeth Sklar**. An agent-based model that relates investment in education to economic prosperity. In *Multi-agent Based Simulation (MABS) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2007.

Maartje Spoelstra and **Elizabeth Sklar**. Agent-based simulation of group learning. In *Multi-agent Based Simulation (MABS) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2007.

Maartje Spoelstra and **Elizabeth Sklar**. Using simulation to model and understand group learning. In *Agent-Based Systems for Human Learning and Entertainment (ABSHLE) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2007.

Yuqing Tang, Simon Parsons, and **Elizabeth Sklar**. An agent-based model that relates investment in education to economic prosperity. In *Sixth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2007.

Simon Parsons, Peter McBurney, **Elizabeth Sklar**, and Michael Wooldridge. On the relevance of utterances in formal inter-agent dialogues. In *Sixth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2007.

Elizabeth Sklar, Jordan Salvit, Christopher Camacho, William Liu, and Valerie Andrewlevich. An agent-based methodology for analyzing and visualizing educational assessment data. In *Sixth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2007.

Elizabeth Sklar, Simon Parsons, and M. Q. Azhar. Robotics across the curriculum. In *AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education*, 2007.

Susan Imberman, Aleksandr Barkan, and **Elizabeth Sklar**. Extra-curricular robotics: Entry-level soccer

for undergraduates. In *AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education*, 2007.

Elizabeth Sklar. Software review: Netlogo, a multiagent simulation environment. *Journal of Artificial Life*, 13(2):303–311, 2007.

Gerhard Lakemeyer, **Elizabeth Sklar**, Domenico Sorrenti, and Tomoichi Takahashi *(editors)*. *RoboCup 2006: Robot Soccer World Cup X, Lecture Notes in Artificial Intelligence (LNAI)*, volume 4434. Springer-Verlag, 2007.

Micha Tomkiewicz, Maxim Titley, Alison Cichowski, Vinit Parmar, **Elizabeth Sklar**, Philip Gallagher, and Mary Gallagher. Toward management of an energy feeding transtion. In *CUNY Sustainability Conference on Energy and Environmental Sustainability: Science, Engineering, and Public Policy*, City University of New York, December 8 2006.

Joshua Reich and **Elizabeth Sklar**. Robot-sensor networks for search and rescue. In *Proceedings of the IEEE International Workshop on Safety, Security and Rescue Robotics (SSRR)*, 2006.

Elizabeth Sklar, Simon Parsons, M. Q. Azhar, and Valerie Andrewlevich. Educational Robotics in Brooklyn. In *Proceedings of the AAAI-06 Mobile Robot Workshop*, 2006.

Rachel Goldman, M. Q. Azhar, and **Elizabeth Sklar**. From RoboLab to Aibo: A Behavior-based Interface for Educational Robotics. In *RoboCup 2006: Robot Soccer World Cup X, Lecture Notes in Artificial Intelligence (LNAI)*, volume 4434, pages 122–133. Springer-Verlag, 2007.

Marek Marcinkiewicz, Mikhail Kunin, Simon Parsons, **Elizabeth Sklar**, and Theodore Raphan. Towards a methodology for stabilizing the gaze of a quadrupedal robot. In *RoboCup 2006: Robot Soccer World Cup X, Lecture Notes in Artificial Intelligence (LNAI)*, volume 4434, pages 540–547. Springer-Verlag, 2007.

A. Tuna Ozgelen, **Elizabeth Sklar**, and Simon Parsons. Automatic acquisition of robot motion and sensor models. In *RoboCup 2006: Robot Soccer World Cup X, Lecture Notes in Artificial Intelligence (LNAI)*, volume 4434, pages 548–555. Springer-Verlag, 2007.

Joshua Reich and **Elizabeth Sklar**. Toward automatic reconfiguration of robot-sensor networks for urban search and rescue. In *Agent Technology for Disaster Management (ATDM) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2006.

Yuqing Tang, Simon Parsons, and **Elizabeth Sklar**. Modeling human education data: From equation-based modeling to agent-based modeling. In *Multi-agent Based Simulation (MABS) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2006.

M. Q. Azhar, Rachel Goldman, and **Elizabeth Sklar**. An agent-oriented behavior-based interface framework for educational robotics. In *Agent-Based Systems for Human Learning (ABSHL) Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2006.

Elizabeth Sklar, Martijn Schut, Konrad Diwold, and Simon Parsons. Exploring coordination properties within populations of distributed agents. In *AAAI Spring Symposium on Distributed Plan and Schedule Management*, 2006.

Elizabeth Sklar and Debbie Richards. The use of agents in human learning systems. In *Fifth International Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, 2006.

Jinzhong Niu, Kai Cai, Simon Parsons, and **Elizabeth Sklar**. Reducing price fluctuation in continuous double auctions through pricing policy and shout improvement. In *Fifth International Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, 2006.

Yuqing Tang, Simon Parsons, and **Elizabeth Sklar**. Agent-based modeling of human education data. In *Fifth International Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, 2006.

Simon Parsons and **Elizabeth Sklar**. How agents alter their beliefs after an argumentation-based dialogue. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents*

and MultiAgent Systems (AAMAS), 2005.

Kar-Hai Chu, Rachel Goldman, and **Elizabeth Sklar**. RoboXAP: an agent-based educational robotics simulator. In *Agent-based Systems for Human Learning Workshop at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2005.

Elizabeth Sklar and Mathew Davies. Multiagent simulation of learning environments. In *Fourth International Conference on Autonomous Agents and Multi Agent Systems (AAMAS)*, 2005.

Elizabeth Sklar, Simon Parsons, and Peter Stone. Using RoboCup in university-level computer science education. *Journal on Educational Resources in Computing (JERIC), Special Issue on robotics in undergraduate education, part I*, 4(2):article 4, pages 1–21, June 2004.

Vanessa Frias-Martinez and **Elizabeth Sklar**. A framework for exploring role assignment in real-time, multiagent teams. In *The second European Workshop on Multi-Agent Systems (EUMAS)*, 2004.

Vanessa Frias-Martinez and **Elizabeth Sklar**. A team-based co-evolutionary approach to multi agent learning. In *Proceedings of the Workshop on Learning and Evolution in Agent-based Systems (LEAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2004.

Elizabeth Sklar and Amy Eguchi. RoboCupJunior – Four Years Later. In *RoboCup 2004: Robot Soccer World Cup VIII, Lecture Notes in Artificial Intelligence (LNAI)*, volume 3276, pages 172–183. Springer-Verlag, 2005.

Vanessa Frias-Martinez, **Elizabeth Sklar**, and Simon Parsons. Exploring auction mechanisms for role assignment in teams of autonomous robots. In *RoboCup 2004: Robot Soccer World Cup VIII, Lecture Notes in Artificial Intelligence (LNAI)*, volume 3276, pages 532–539. Springer-Verlag, 2005.

Elizabeth Sklar, Mathew Davies, and Min San Tan Co. SimEd: Simulating Education as a MultiAgent System. In *Proceedings of the Third International Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, pages 998–1005, 2004.

Rachel Goldman, Amy Eguchi, and **Elizabeth Sklar**. Using Educational Robotics to Engage Inner-City Students with Technology. In *Proceedings of the Sixth International Conference of the Learning Sciences (ICLS)*, pages 214–221, 2004.

Elizabeth Sklar. A long-term approach to improving human-robot interaction: RoboCupJunior Rescue. In *Proceedings of the International Conference on Robotics and Automation (ICRA)*, 2004.

Elizabeth Sklar and Simon Parsons. Towards the Application of Argumentation-based Dialogues for Education. In *Proceedings of the Third International Conference of Autonomous Agents and Multi Agent Systems (AAMAS)*, pages 1420–1421, 2004.

Elizabeth Sklar, Simon Parsons, and Mathew Davies. When is it okay to lie? a simple model of contradiction in agent-based dialogues. In *Proceedings of the Workshop on Argumentation in Multiagent Systems (ArgMAS) at Autonomous Agents and MultiAgent Systems (AAMAS)*, 2004.

Simon Parsons and **Elizabeth Sklar**. Teaching AI using LEGO Mindstorms. In *AAAI Spring Symposium 2004 on Accessible Hands-on Artificial Intelligence and Robotics Education*, 2004.

Jacky Baltes, **Elizabeth Sklar**, and John Anderson. Teaching with RoboCup. In *AAAI Spring Symposium 2004 on Accessible Hands-on Artificial Intelligence and Robotics Education*, 2004.

Elizabeth Sklar and Amy Eguchi. Learning while Teaching Robotics. In *AAAI Spring Symposium 2004 on Accessible Hands-on Artificial Intelligence and Robotics Education*, 2004.

Jonah Benton and **Elizabeth Sklar**. Evolving a Community for Evolving Learners. *Learning Technology newsletter*, 6(1), 2004.

Vanessa Frias-Martinez, Marek Marcinkiewicz, Simon Parsons, and **Elizabeth Sklar**. Using Multiagent Coordination Techniques in the RoboCup Four-legged League. In *AAAI Spring Symposium 2004 on Bridging*

the multiagent and multirobotic research gap, 2004.

Vanessa Frias-Martinez, Marek Marcinkiewicz, Simon Parsons, and **Elizabeth Sklar**. MetroBots Team Description. In *RoboCup 2004: Robot Soccer World Cup VIII*, 2004.

Hans-Dieter Burkhard, Minoru Asada, Andrea Bonarini, Adam Jacoff, Daniele Nardi, Martin Riedmiller, Claude Sammut, **Elizabeth Sklar**, and Manuela Veloso. RoboCup: Yesterday, Today, and Tomorrow Workshop of the Executive Committee in Blaubeuren, October 2003. *RoboCup 2003: Robot Soccer World Cup VII, Lecture Notes in Computer Science*, 3020, 2004.

Elizabeth Sklar, Emi Amy Eguchi, and Jeffrey Johnson. Scientific Challenge Award: RoboCupJunior — Learning with Educational Robotics. *AI Magazine*, 24(2):43–46, 2003.

Minoru Asada, Oliver Obst, Daniel Polani, Brett Browning, Andrea Bonarini, Masahiro Fujita, Thomas Christaller, Tomoichi Takahashi, Satoshi Tadokoro, **Elizabeth Sklar**, and Gal A. Kaminka. An Overview of RoboCup-2002 Fukuoka/Busan. *AI Magazine*, 24(2):21–40, 2003.

Elizabeth Sklar, Simon Parsons, and Peter Stone. RoboCup in Higher Education: A Preliminary Report. In *RoboCup 2003: Robot Soccer World Cup VII, Lecture Notes in Computer Science*, volume 3020, pages 296–307, 2004.

John Anderson, Jacky Baltes, David Livingston, **Elizabeth Sklar**, and Jonah Tower. Toward an Undergraduate League for RoboCup. In *RoboCup 2003: Robot Soccer World Cup VII, Lecture Notes in Computer Science*, volume 3020, pages 670–677, 2004.

Michael Littman, Simon Parsons, and **Elizabeth Sklar**. MetroBots Team Description. In *RoboCup 2003: Robot Soccer World Cup VII*, 2003.

Elizabeth Sklar. Agents for Education: When too much intelligence is a bad thing. In *Proceedings of the Second International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, pages 1118–1119. ACM Press, 2003.

Steve Phelps, Simon Parsons, **Elizabeth Sklar**, and Peter McBurney. Applying Genetic Programming to Economic Mechanism Design: Evolving a pricing rule for a continuous double auction. In *Second International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, pages 1096–1097, 2003.

Mathew Davies and **Elizabeth Sklar**. Modeling Human Learning as a Cooperative Multi Agent Interaction. In *AAMAS Workshop on Humans and Multi-Agent Systems, at the Second International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, 2003.

Elizabeth Sklar. RoboCupJunior 2002: The state of the league. In *RoboCup 2002: Robot Soccer World Cup VI, Lecture Notes in Artificial Intelligence (LNAI)*, volume 2752, pages 489–495, 2003.

Elizabeth Sklar, Amy Eguchi, and Jeffrey Johnson. RoboCupJunior: learning with educational robotics. In *RoboCup 2002: Robot Soccer World Cup VI, Lecture Notes in Artificial Intelligence (LNAI)*, volume 2752, pages 238–253, 2003. Received Scientific Challenge Award.

Elizabeth Sklar, Jeffrey H. Johnson, and Henrik Hautop Lund. The Educational Value of Children's Team Robotics: A Case Study of RoboCup Junior. In *Proceedings of the Seventh International Symposium on Artificial Life and Robotics (AROB)*, 2002.

Elizabeth Sklar, Emi Amy Eguchi, and Jeffrey Johnson. Examining Team Robotics through RoboCupJunior. In *Annual conference of Japan Society for Educational Technology, Nagaoka, Japan*, 2002.

Elizabeth Sklar and Simon Parsons. RoboCupJunior: a vehicle for enhancing technical literacy. In *Proceedings of the AAAI-02 Mobile Robot Workshop*, 2002.

Steve Phelps, Peter McBurney, Simon Parsons, and **Elizabeth Sklar**. Co-evolutionary mechanism design: a preliminary report. In *Proceedings of AMEC-2002 Workshop on Agent Mediated Electronic Commerce, at Autonomous Agents and Multagent Systems Conference (AAMAS), Lecture Notes in Artificial Intelligence*,

volume 2531, pages 123–142. Springer-Verlag, 2002.

Steve Phelps, Simon Parsons, Peter McBurney, and **Elizabeth Sklar**. Co-evolution of Auction Mechanisms and Trading Strategies: Towards a Novel Approach to Microeconomic Design. In *Proceedings of ECOMAS-2002 Workshop on Evolutionary Computation in Multi-Agent Systems, at Genetic and Evolutionary Computation Conference (GECCO)*, 2002.

Elizabeth Sklar. It Takes a Virtual Village: Towards an Automated Interactive Agency. In *AAAI 2002 Fall Symposium on Personalized Agents*, 2002.

Elizabeth Sklar, Alan D. Blair, and Jordan B. Pollack. Chapter 8: Training Intelligent Agents Using Human Data Collected on the Internet. In *Agent Engineering*, pages 201–226. World Scientific, Singapore, 2001.

Elizabeth Sklar. The Design of the CEL System. Technical report, 2001. unpublished.

Elizabeth Sklar. *CEL: A Framework for Enabling an Internet Learning Community*. PhD thesis, Department of Computer Science, Brandeis University, 2000.

Elizabeth Sklar and Jordan B. Pollack. A Framework for Enabling an Internet Learning Community. *Journal of International Forum of Educational Technology & Society, Special Issue on On-line Collaborative Learning Environments*, 3(3):393–408, July 2000.

Elizabeth Sklar and Jordan B. Pollack. An evolutionary approach to guiding students in an educational game. In *Proceedings of the Sixth International Conference on Simulation of Adaptive Behavior (SAB)*, 2000.

Elizabeth Sklar and Jordan Pollack. Using an evolutionary algorithm to guide problem selection in an online educational game. In *Workshop on Evolutionary Computation and Cognitive Science (ECCS)*, 2000. Received best student paper award.

Elizabeth Sklar, Jeffrey Johnson, and Henrik Hautop Lund. Children Learning from Team Robotics: RoboCup Junior 2000 Report: Educational Research Report. Technical report, The Open University, Milton Keynes, UK, 2000.

Elizabeth Sklar and Jordan B. Pollack. Demonstrating a Community of Evolving Learners. In *Computer Supported Collaborative Learning (CSCL)*, 1999. Interactive Presentation.

Elizabeth Sklar. Agents for Education: Bringing Adaptive Behavior to an Internet Learning Community. Technical report, Department of Computer Science, Brandeis University, 1999. Dissertation Proposal.

Elizabeth Sklar, Alan D. Blair, Pablo Funes, and Jordan Pollack. Training Intelligent Agents Using Human Internet Data. In *Proceedings of the First Asia-Pacific Conference on Intelligent Agent Technology (IAT)*, pages 354–363, 1999. Nominated for best paper award.

Alan D. Blair and **Elizabeth Sklar**. Exploring evolutionary learning in a simulated hockey environment. In *Proceedings of the 1999 Congress on Evolutionary Computation (CEC)*, pages 197–203, 1999.

Alan D. Blair, **Elizabeth Sklar**, and Pablo Funes. Co-evolution, Determinism and Robustness. In *Simulated Evolution and Learning (SEAL), Lecture Notes in Artificial Intelligence*, volume 1585, pages 389–396. Springer-Verlag, 1998.

Pablo Funes, **Elizabeth Sklar**, Hugues Juillé, and Jordan B. Pollack. Animal-Animat Coevolution: Using the Animal Population as Fitness Function. In *Proceedings of the Fifth International Conference on Simulation of Adaptive Behavior (SAB)*, pages 525–533. MIT Press, 1998.

Alan D. Blair and **Elizabeth Sklar**. The evolution of subtle manoeuvres in simulated hockey. In *Proceedings of the Fifth International Conference on Simulation of Adaptive Behavior (SAB)*. MIT Press, 1998.

Elizabeth Sklar and Jordan B. Pollack. Toward a Community of Evolving Learners. In *Proceedings of the Third International Conference on the Learning Sciences (ICLS)*, 1998.

Elizabeth Sklar, Alan D. Blair, and Jordan B. Pollack. Co-Evolutionary Learning: Machines and Humans Schooling Together. In *Proceedings of the Workshop on Current Trends and Applications of Artificial Intelligence in Education at the Fourth World Congress on Expert Systems*, pages 98–105, 1998.

Elizabeth Sklar (Rozier) and Richard Alterman. Participatory Adaptation. In *Proceedings of the Conference on Human Factors in Computer Systems (CHI)*, pages 261–262, 1997.

Pablo Funes, **Elizabeth Sklar**, Hugues Juillé, and Jordan B. Pollack. The Internet as a Virtual Ecology: Coevolutionary Arms Races Between Human and Artificial Populations. Technical Report CS-97-197, Brandeis University Computer Science Department Technical Report, 1997.

Elizabeth Sklar and J. Kent Pollock. FLIPPER Programmer's Manual. Technical Report LM-196, MIT Lincoln Laboratory Manual, 1996.

Elizabeth Sklar, David R. Shue, John W. Curtis, Chris C. Cullinane, Tony C. Hayes, and J. Kent Pollock. FLIPPER User's Manual. Technical Report LM-182, MIT Lincoln Laboratory Manual, 1993.

TEACHING

- *Human-Computer Interaction (cisc3650)*
  Dept of Computer Science and Information Science, Brooklyn College, City University of New York. Spring 2012. This course provides an overview of computer-human interfaces with an emphasis on classical and state-of-the-art approaches. The following topics are discussed: principles of human-computer interaction and human-robot interaction; ubiquitous computing and interfaces for mobile devices; interfaces employing speech recognition and computer vision; sensor and robotic technologies; computer supported cooperative work; and virtual and augmented realities.

- *Game Design (cisc3665)*
  Dept of Computer Science and Information Science, Brooklyn College, City University of New York. Fall 2011. This course discusses designing the intelligence behind computer games. The following topics are covered: fundamentals of designing, programming and troubleshooting game behavior; and documenting and critiquing design.

- *Introduction to Computing using C++: Gaming Applications (cisc1110)*
  Dept of Computer Science and Information Science, Brooklyn College, City University of New York. Fall 2010. This is a "flavored" version of introductory computer programming for CS majors ("CS1"), formerly numbered cis1.5. The Games flavor, which I developed and taught initially in Fall 2010, provides a unified context for the material presented and involves hands-on programming labs in C++ where students write simple computer games.

- *Seminar in Artificial Life (CSc 84200)*
  Dept of Computer Science, Graduate Center, City University of New York. Spring 2010. This seminar discusses fundamental topics in the field of Artificial Life, or "ALife", from an historical and technical perspective. The main topics include: overview of artificial life; modelling from nature; artificial agents: control, interaction and learning; evolutionary computation; and artificial societies: complexity, organization and self-organization.

- *Design and Implementation of Software Applications 2 (cis20.2)*
  Dept of Computer and Information Science, Brooklyn College, City University of New York. Spring 2010, Spring 2008. (part 2 of Design and Implementation of Software Applications 1). This course, which I developed and taught initially in Spring 2008, focuses on the design, implementation and testing of a web-based, data-backed interactive application, such as an educational game or an e-commerce site. Topics include: software development and engineering, database systems and intelligent systems.

- *Dynamic and Interactive Media in Performance I (pima7741)*
  Performance and Interactive Media Arts Program, Brooklyn College, City University of New York. Fall 2009, Fall 2011. This course provides in-depth study of tools and techniques for designing dynamic and interactive multimedia systems for use in live performance situations. Video, audio, three-dimensional computer images, and alternative computer-human interfaces will be addressed.

- *Introduction to Multimedia Computing (cis3.5)*
  Dept of Computer and Information Science, Brooklyn College, City University of New York. Fall 2009, Spring 2009. This course, which I developed and taught initially in Spring 2009, offers a broad introduction to a range of topics in Multimedia Computing, including: multimedia hardware and software, human interface design and input using multimedia devices, graphical and other forms of output to multimedia devices, computer-based sound editing, agent-based programming for simulations and robotics, and uses of multimedia in industry.

- *Introduction to Computing using C++: Robotics Applications (cis1.5)*
  Dept of Computer Science and Information Science, Brooklyn College, City University of New York. Spring 2009, Spring 2007. This is a "flavored" version of introductory computer programming for CS majors ("CS1"). The Robotics flavor, which I developed and taught initially in Spring 2007, provides a unified context for the material presented and involves hands-on programming labs in C++ and using Surveyor SRV-1 robots.

- *Multi-agent Systems (CSc 84020)*
  Dept of Computer Science, Graduate Center, City University of New York. Fall 2008. This course offers a broad introduction to the field of Multi-Agent Systems (MAS), presenting the underlying theoretical background in agent architectures and communication methodologies and discussing seminal work in the field. The latter portion of the course covers state-of-the-art research in MAS applications.

- *Everyday Technology To Go (scp50)*
  Macaulay Honors College, City University of New York. Spring 2008. This honors seminar, which I developed and taught initialy in Spring 2008, explores the role of automated (i.e., programmable) devices and state-of-the-art technology in society today (e.d., cell phones, ipods, personal organizers and portable games), how these devices have changed the way people communicate with each other and how people organize and use their time.

- *Design and Implementation of Software Applications 1 (cis20.1)*
  Dept of Computer and Information Science, Brooklyn College, City University of New York. Fall 2007. This course, which I developed and taught initially in Fall 2007, focuses on the design, development, implementation and testing of a web-based, data-backed interactive application, such as an educational game or an e-commerce site. Topics include: human-computer interaction, graphics programming, net-centric computing, and software design.

- *Advanced Programming Techniques using C++: Robotics Applications (cis15)*
  Dept of Computer and Information Science, Brooklyn College, City University of New York. Fall 2007. This is a "flavored" version of advanced computer programming for CS majors ("CS2"). The Robotics flavor, which I developed and taught initially in Fall 2007, provides a unified context for the material presented and involves hands-on programming labs with robot simulations and small robots (e.g., Surveyor SRV-1). Topics include: object-oriented programming, pointers, dynamic memory allocation, multi-file programs, recursion, formal techniques for software design and testing.

- *Computing: Nature, Power and Limits; Robotics Applications (cis1.0)*
  Dept of Computer Science and Information Science, Brooklyn College, City University of New York. Fall 2007, Fall 2006. This is a "flavored" version of the department's lower tier core course that introduces computer science to non-majors. This Robotics flavor provides a unified context for the material presented and involves hands-on programming labs with LEGO robotics.

- *Artificial Intelligence (cis-32)*
  Dept of Computer and Information Science, Brooklyn College, City University of New York. Spring 2006. This is a survey course covering topics in Artificial Intelligence at the introductory level, designed for undergraduate majors in computer and information science. The course includes a hands-on robotics project used to demonstrate concepts discussed in lectures and readings.

- *Seminar in Artificial Intelligence: Topics in AI and Robotics (csc-84200)*
  Dept of Computer Science, Graduate Center, City University of New York. Fall 2006. This graduate seminar includes readings and discussion covering the field of robotics, with a focus on emerging and state-of-the-art technologies.

- *Electronic Commerce (cis-3.2).* Dept of Computer and Information Science, Brooklyn College, City University of New York. Spring 2006, Fall 2005. This undergraduate course provides a broad introductory overview to the field of electronic commerce.

- *Seminar in Artificial Intelligence: Topics in Artificial Life (csc-84200)*
  Dept of Computer Science, Graduate Center, City University of New York. Fall 2005. This graduate seminar included readings, discussion and development of a demonstration project covering the field of "ALife" since its infancy in the early 1990's.

- *Advanced Programming (coms-w3157)*
  Dept of Computer Science, Columbia University. Fall 2004, Spring 2004, Fall 2003, Spring 2003, Fall 2002. This course, which I re-developed initially in Fall 2002, covers a range of software techniques and tools for the development and implementation of web-based applications.

- *Introduction to Computer Science in Java (coms-w1007)*
  Dept of Computer Science, Columbia University. Fall 2002, Spring 2002, Fall 2001. This course is the canonical CS1, in Java.

- *Computer Science I, in C (mc140)*
  Dept of Computer Science, Boston College. Spring 2001. This course is the canonical CS1, in C.

- *Introduction to Robotics (mc375)*
  Dept of Computer Science, Boston College. Spring 2001. This course, which I developed and taught, focuses on embodied agents, and includes a lab segment where students build and program LEGO robots to demonstrate some of the concepts they are learning about in the lecture portion of the course.

- *Internet and Society (cs33b)*
  Dept of Computer Science, Brandeis University. Spring 2001. This was a collaborative, interdisciplinary course. I was a member of the development team and was a guest lecturer on the subject of Internet learning communities.

- *Computer Science I, in C (mc140)*
  Dept of Computer Science, Boston College. Fall 2000.

- *The computer industry: historical, social and professional issues (cse-3323)*
  Dept of Computer Science, Monash University, Australia. Summer 2000.

- *Frontiers of Computer Science (433-257)*
  Dept of Computer Science, University of Melbourne, Australia. Summer 2000. I was guest lecturer for a segment of this course and I taught on the topic of Internet learning communities and Intelligent Tutoring Systems.

ADVISING

- PhD students
  - M. Q. Azhar (since September 2005)
  - Michael Byrd (since Fall 2009)
  - Sadat Chowdury (since January 2006)
  - J. Pablo Munoz (since September 2011)
  - A. Tuna Ozgelen (since September 2005)
  - Jordan Salvit (since September 2011)
- MS students
  - Kenny Auyeung (since September 2010)
  - Jeffery Raphael (since September 2010)
  - Jordan Salvit, graduated Spring 2012
  - Gennadiy Trakhtman, graduated September 2010
  - Barbra Ehlers, graduated May 2008
  - Maartje Spoelstra, graduated August 2006
  - Rachel Goldman, graduated October 2005
  - William Liu, graduated October 2005
  - Kar Hai Chu, graduated May 2005
  - Min San Tan Co, graduated May 2005
  - Mathew Davies, graduated May 2005
  - Michael Ockfen-Metcalf, graduated May 2004
  - Joshua Reich, graduated May 2004
  - Yaniv Schiller, graduated May 2004
  - Max Shevyakov, graduated December 2003
- Visiting students
  - Martin Klomp, University of Groningen, The Netherlands, September 2007–April 2008.
  - Hans Kuipers, Utrecht University, The Netherlands, May 2006–October 2006.
  - Maartje Spoelstra, Vrije Universiteit Amsterdam, The Netherlands, September 2005–March 2006.
  - Martijn Rooker, International University Bremen, Germany, October–December 2003.

DEPARTMENTAL ADVISING

- Brooklyn College, *Undergraduate Deputy Chair (CLAS)*, July 2009–2010.
- Columbia Women in Computer Science (WICS), *Faculty Advisor*, 2003–2005.
- Association for Computing Machinery (ACM) Columbia Student Chapter, *Faculty Advisor*, 2003–2005.
- Barnard College, *Computer Science Majors Advisor*, 2001–2005.

- Columbia RoboCup ELeague team, *Faculty Advisor*, 2003–2004.

TUTORIALS and TRAINING WORKSHOPS

- *Robots in Multiagent Systems Research*, with Dr Simon Parsons, Brooklyn College, City University of New York. Tutorial at the 13th European Agent Systems Summer School (EASSS), Girona, Catalonia, Spain, July 2011.
- *Bridges to Computing Teacher Training Workshop*, at Brooklyn College, City University of New York, NY, July 2010.
- *RoboCupJunior @ NYC Teacher Training Workshops*, at Brooklyn College and the Graduate Center, City University of New York, New York, NY (January 2007; December 2006; February 2006; January 2006; December 2005).
- *Education-based Multiagent Systems*, with Dr Lewis Johnson, University of Southern California and Dr Uri Wilensky, Northwestern University. Tutorial given at AAMAS-05 (Autonomous Agents and Multiagent Systems), July 2005, in Utrecht, The Netherlands.
- *Robotics for Beginners: Using Robot Kits to Build Embodied Agents*, with Dr Simon Parsons, Brooklyn College, City University of New York. Tutorial given at the 7th European Agent Systems Summer School (EASSS), Utrecht, The Netherlands, July 2005.
- *Robotics for Beginners; Using Robot Kits to Teach Agents and AI*, with Dr Simon Parsons, Brooklyn College, City University of New York. Tutorial given at AAAI-05 (National Conference of the American Association for Artificial Intelligence), July 2005, in Pittsburgh, PA, USA.
- *GK12 Teacher Training Workshop, Introduction to Robotics*, July 2005, Columbia University, New York, NY (July 2005; July 2004; August 2003).
- *Using Robot Kits as a Pedagocial Tool for Teaching Autonomous Agents*, with Dr Simon Parsons, Brooklyn College, City University of New York. Tutorial given at AAMAS-03 (Autonomous Agents and Multiagent Systems), July 2003, in Melbourne, Australia.
- *JETT@Columbia Java Workshops for Teachers*, Columbia University, New York, NY (May 2003; March 2003; July 2002).

INVITED TALKS and DEPARTMENTAL SEMINARS

- Centre for Intelligent Systems and their Applications, School of Informatics, The University of Edinburgh
  Edinburgh, Scotland, May 2012.
- Department of Computer Science, Brandeis University
  Waltham, MA, March 2012.
- Research at CUNY Seminar, Department of Computer Science, Graduate Center, City University of New York
  New York, NY, February 2011.

- King's College London Informatics Colloquium
  London, UK, February 2011.
- Active Worlds in Education Workshop
  Brooklyn, NY, April 2010.
- CUNY Statistics Seminar, The Graduate Center, City University of New York
  New York, NY, October 2009.
- NSF BPC/NCWIT K-12 Outreach Practices Workshop
  Washington, DC, June 2009.
- Computer Science and Math Scholarship Talk, Lehman College, City University of New York
  New York, NY, April 2008.
- Computational Synthesis Lab, Departments of Mechanical and Aerospace Engineering and Computer & Information Science, Cornell University
  Itaca, NY, February 2007.
- Department of Computer Science, Georgetown University
  Washington, DC, October 2006.
- Department of Computer Science, University of Southern California
  Los Angeles, CA, March 2006.
- Department of Computer Science and Electrical Engineering, University of Maryland, Baltimore County
  Baltimore, MD, December 2005.
- Research at CUNY Seminar, Department of Computer Science, Graduate Center, City University of New York
  New York, NY, November 2005.
- Department of Computer Science, Vassar College
  Poughkeepsie, NY, November 2005.
- Department of Computer and Information Science, Brooklyn College, City University of New York
  Brooklyn, NY, January 2005.
- AI Seminar Series, Carnegie Mellon University
  Pittsburgh, PA, November 2004.
- 2004 Computer Science & Information Technology Symposium
  Norfolk, VA, March 2004.
- School of General Studies Lecture Series, Columbia University
  New York, NY, December 2003.
- RoboCup American Open Symposium, Carnegie Mellon University
  Pittsburgh, PA, April 2003.
- Department of Computer Science, Columbia University
  New York, NY, March 2001.
- Department of Information Science and Telecommunications, University of Pittsburgh
  Pittsburgh, PA, March 2001.

- Department of Computer Science, Boston College
  Chestnut Hill, MA, March 2001.
- Neural Information Processing Department, University of Ulm
  Ulm, Germany, January 2001.
- Artificial Intelligence Laboratory, Flemish Free University of Brussels
  Brussels, Belgium, January 2001.
- Department of Computer Science, University of Arizona
  Tucson, AZ, February 2000.
- Department of Computer Science, Colorado State University
  Fort Collins, CO, February 2000.
- Department of Computer Engineering and Computer Science, University of Missouri-Columbia
  Columbia, MO, February 2000.
- Department of Computer Science, Brandeis University
  Waltham, MA, February 2000.
- Department of Computer Science, University of Melbourne
  Melbourne, Australia, September 1999 and January 2000.
- School of Information Technology, Charles Sturt University
  Bathurst (NSW), Australia, September 1999.
- Department of Computing, Macquarie University
  Sydney, Australia, September 1999.
- School of Computer Science, Monash University
  Melbourne, Australia, August 1999.
- University of Queensland
  Brisbane, Australia, July 1999 and July 1998.

COMMITTEES and ACADEMIC SERVICE

service to the institution:

- Executive Committee, Dept of Computer Science, The Graduate Center, City University of New York, Fall 2012 to present.
- Curriculum Committee, Dept of Computer Science, The Graduate Center, City University of New York, Fall 2010 to present.
- Undergraduate Curriculum Committee, Dept of Computer and Information Science, Brooklyn College, City University of New York, Spring 2006 to present.
- Computer Utilization and Educational Technology Committee, Brooklyn College, City University of New York, Fall 2009 to Spring 2010.
- Science Research Council, Brooklyn College, City University of New York, Spring 2007.
- Master Planning Committee, Brooklyn College, City University of New York, Fall 2006 to Spring 2007.

service to the academic community:

- International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS), *Member of the Board of Directors (2012–2018)*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2012, *Workshops Chair; Senior Program Committee Member*
- Association for the Advancement of Artificial Intelligence (AAAI), 2012, *Doctoral Consortium Chair*
- Autonomous Robots and Multirobot Systems Workshop (ARMS) at Autonomous Agents and Multi Agent Systems (AAMAS), 2012, *Program Committee Member*
- The Computer Science Collaboration Project, *Change Agents Council Member* (2011–)
- Autonomous Agents and Multi Agent Systems (AAMAS), 2011, *Demonstrations Chair; Senior Program Committee Member*
- Multi-Agent-Based Simulation Workshop (MABS) at Autonomous Agents and Multi Agent Systems (AAMAS), 2011, *Program Committee Member*
- Autonomous Robots and Multirobot Systems Workshop (ARMS) at Autonomous Agents and Multi Agent Systems (AAMAS), 2011, *Program Committee Member*
- Association for the Advancement of Artificial Intelligence (AAAI), 2011, *Doctoral Consortium Co-Chair*
- Member of the Editorial Board, *Journal of Autonomous Agents and Multi-agent Systems (JAAMAS)* (2010–)
- RoboCup Federation, *Founder Trustee* (2010–)
- Association for the Advancement of Artificial Intelligence (AAAI), 2010, *Doctoral Consortium Mentor*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2010, *Program Committee Member, Industry Track*
- Multi-Agent-Based Simulation Workshop (MABS) at Autonomous Agents and Multi Agent Systems (AAMAS), 2010, *Program Committee Member*
- IEEE/WIC/ACM International Joint Conference on Intelligent Agent Technology (IAT), 2010, *Program Committee Member*
- ABModSim Workshop at 20th European Meeting on Cybernetics and Systems Research (EMCSR), 2010, *Program Committee Member*
- RoboCupJunior @ NY/NJ, 2010, *Co-Chair*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2009, *Program Committee Member*
- ACM Symposium on Applied Computing (SAC), Special Track on Agreement Technologies, 2009, *Program Committee Member*
- Workshop on Social Simulation at International Joint Conference on Artificial Intelligence (IJCAI), 2009, *Program Committee Member*
- Multi-Agent-Based Simulation Workshop (MABS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2009, *Program Committee Member*

- Argumentation in Multi-Agent Systems Workshop (ArgMAS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2009, *Program Committee Member*
- IEEE/WIC/ACM International Joint Conference on Intelligent Agent Technology (IAT), 2009, *Program Committee Member*
- RoboCupJunior @ NY/NJ, 2009, *Co-Chair*
- Multi-Agent-Based Simulation Workshop (MABS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2008, *Program Committee Member*
- Argumentation in Multi-Agent Systems Workshop (ArgMAS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2008, *Program Committee Member*
- IEEE/WIC/ACM International Joint Conference on Intelligent Agent Technology (IAT), 2008, *Program Committee Member*
- Workshop on Teaching with robotics: didactic approaches and experiences, European Comenius Project TERECoP (Teacher Education on Robotics-Enhanced Constructivist Pedagogical Methods), Simulation, Modeling and Programming for Autonomous Robots Conference (SIMPAR), 2008, *Program Committee Member*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2008, *Senior Program Committee Member* and *Senior Robotics Program Committee Member*
- RoboCup Simulation League, Mixed Reality competition, 2008, *Reviewer*
- Global Conference on Educational Robotics (GCER), 2008, *Program Committee Member*
- Institute for Personal Robots In Education, *Advisory Board Member, 2007–2010*
- LEGOEngineering.com, 2007, *Advisory Board Member*
- First International Workshop on Human Aspects in Ambient Intelligence, Workshop at the European Conference on Ambient Intelligence (AmI), 2007 *Program Committee Member*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2007, *Workshops Chair*
- Agent-based Systems for Human Learning and Entertainment Workshop (ABSHLE) at Autonomous Agents and Multi Agent Systems (AAMAS), 2007, *Co-Chair*
- Workshop on Agent Mediated Electronic Commerce IX (AMEC) at Autonomous Agents and Multi Agent Systems (AAMAS), 2007, *Organizing Committee Member*
- Multi-Agent-Based Simulation Workshop (MABS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2007, *Program Committee Member*
- Argumentation in Multi-Agent Systems Workshop (ArgMAS): at Autonomous Agents and Multi Agent Systems (AAMAS), 2007, *Program Committee Member*
- IEEE/WIC/ACM International Joint Conference on Intelligent Agent Technology (IAT), 2007, *Program Committee Member*
- RoboCupJunior International, 2007, *League Chair*
- RoboCupJunior @ NYC, 2007, *Chair*
- RoboCup International Symposium, 2006, *Co-Chair*

- Autonomous Agents and Multi Agent Systems (AAMAS), 2006, *Senior Program Committee Member*, *Doctoral Mentoring Symposium Mentor*
- American Association for Artificial Intelligence (AAAI), 2006, *Program Committee Member*
- RoboCupJunior @ NYC, 2006, *Chair*
- Ibero-American Artificial Intelligence Conference (Iberamia), 2006, *Program Committee Member*
- Agent-based Systems for Human Learning Workshop (ABSHL) at Autonomous Agents and Multi Agent Systems (AAMAS), 2006, *Co-Chair*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2005, *Program Committee Member*
- Agent-based Systems for Human Learning Workshop (ABSHL) at Autonomous Agents and Multi Agent Systems (AAMAS), 2005, *Co-Chair*
- Autonomous Agents and Multi Agent Systems (AAMAS), 2004, *Local Organization Co-Chair*
- The Nineteenth National Conference on Artificial Intelligence (AAAI), 2004, *Program Committee Member*
- AAAI Spring 2004 Symposium on AI Education with Low-cost Robotic Platforms, 2004, *Program Committee Member*
- RoboCup Federation, *Trustee* (2004–2009);
- RoboCupJunior International, 2004, *Organizing Committee Member*
- RoboCup International Symposium, 2003, *Program Committee Member*
- RoboCupJunior International, 2003, *Organizing Committee Member*
- RoboCup American Open 2003, *Organizing Committee Member*
- Autonomous Agents and Multi Agent Systems (AAMAS) Workshop on Humans and Multi Agent Systems, 2003, *Program Committee Member*
- International Joint Conference on Artificial Intelligence (IJCAI), 2003, *Reviewer*
- ACM Java Engagement for Teacher Training (JETT), 2003–2004, *Steering Committee Member*
- ACM Java Engagement for Teacher Training (JETT), 2002–2003, *National Co-Chair of Pilot Program*
- RoboCup International Symposium, 2002, *Program Committee Member*
- RoboCupJunior International, 2002, *League Chair*
- RoboCup Federation, *Executive Committee Member* (2001–2009);
- RoboCup International Symposium, 2001, *Program Committee Member*
- RoboCupJunior International, 2001, *League Chair*
- Autonomous Agents, 2001, *Robot Program Committee Member*
- RoboFesta International Forum, 2001, *Program Committee Member*
- RoboCupJunior International, 2000, *Founding Co-Chair and Local Organizer*
- Workshop on Evolutionary Computation and Cognitive Science (ECCS), 2000, *Local Organizer*

- NSF review panels, multiple times since 2002
- PhD candidacy and dissertation committees
- Reviewer for multiple international journals including *Computers & Education*, *Journal of Autonomous Agents and Multi-agent Systems (JAAMAS)*, *Communications of the ACM (Association for Computing Machinery)*

OUTREACH AND COMMUNITY SERVICE

- Between 2006-2011, I ran the *Bridges to Computing* project (funded by my NSF BPC grant) which focused on the transition years from high school to college, working to better inform students about and prepare them for careers in computing fields. One of the major outcomes of the Bridges project was the development of an introductory computing course for high school students that we now give regularly to NYC public high school students through the CUNY CollegeNow program for high school credit (since 2010) and college credit (since 2012). I continue to advise CUNY CollegeNow on the administrative and curricular aspects of this course.
- In 2006, I established *RCJ@NY/NJ*, an annual New York and New Jersey regional RoboCupJunior (RCJ) event, which is part of the international educational robotics initiative that I helped found in Australia in 2000. I hosted or co-hosted RCJ@NY/NJ between 2006-2011. Some of these events have taken place in public spaces, such as the New York Hall of Science, in Queens, NY.
- In Fall 2005, I created an outreach program to public and independent schools and after-school programs in Brooklyn, NY. This program involves pairing undergraduate and masters students with in-practice teachers to help them bring educational robotics into their classrooms and curricula. Between 2005-2007, we worked with 8 NYC public schools.
- Through funding provided by NSF GK12 grants and the CRA-W Distributed Mentorship Program, I supervised students teaching robotics to inner-city high school students at summer schools in the Science and Technology Entry Program (STEP) at Barnard College (2003 and 2004) and Playing2Win, a community center in Harlem, NY (2003).
- I served as the Faculty Advisor to the Stuyvesant High School RoboCup team in 2003.
- I helped the teachers and technology coordinators to establish educational robotics activities in the curriculum for 2nd-4th graders and for the afterschool program during the opening year (2003-04) of The School at Columbia. This involved advising on equipment purchases, initiating teacher training, and providing graduate and undergraduate students to work in class with the teachers.
- From 1997-2001, I was a member of Technology Team at the Maria Hastings Elementary School in Lexington, MA, which was a committee of parents, teachers, school administrators and community members who were charged with helping integrate technology effectively in the classroom. I chaired the committee for two years (1997–1999).

CITIZENSHIP

- U.S.A.