

Iris Howley

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Computer Science Department
Williams College
47 Lab Campus Drive
Williamstown, MA
01267

ACADEMIC POSITIONS

Assistant Professor of Computer Science Williams College	July 2017 – Present Williamstown, MA
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EDUCATION AND TRAINING

Stanford University Postdoctoral Research Fellow in Education Adviser: Candace Thille (Stanford University) & George Siemens (University of Texas Arlington)	October 2015 – July 2017 Stanford, CA
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Carnegie Mellon University Ph.D. in Human-Computer Interaction Primary Adviser: Carolyn Penstein Rosé Concurrent M.S. in Human-Computer Interaction, 2012 Dissertation: Leveraging Educational Technology to Overcome Social Obstacles to Help-seeking Committee: Carolyn Rosé, Vincent Aleven, Stuart Karabenick, Bob Kraut, & Marsha Lovett	Graduated: September 2015 Pittsburgh, PA
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Drexel University Bachelor of Science in Computer Science Minor in Arabic Language	Graduated: June 2008 Philadelphia, PA Cumulative GPA: 3.90
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AWARDS

- International Conference of the Learning Sciences Early Career Workshop Travel Award (\$1,700) 2018
- “Adaptable Learning Feedback for Instructors” Stanford University VPTL Innovation Grant (\$9,993) 2017
- Human-Robot Interaction Conference Pioneer Travel Award (\$2,320) 2014
- Program in Interdisciplinary Education Research Fellow Fellowship (\$210,000 over 5 years) 2008 - 2013
- Computer-Supported Collaborative Learning Conference Travel Award (\$847) 2013
- Intelligent Tutoring Systems Conference Young Researchers’ Track Travel Award (\$350) 2010
- NSF Graduate Research Fellowship Honorable Mention 2008
- Computing Research Association Outstanding Undergraduate Finalist 2008
- Drexel University Merit Scholarship Scholarship (\$85,000 over 5 years) 2003 - 2008
- Drexel University College of Engineering Undergraduate Research Award 2008
- Harry E. Muchnic Scholarship from Drexel College of Engineering Scholarship (\$1,000) 2006
- Students Tackling Advanced Research Program at Drexel University 2004
- Girl Scout Gold Award 2002

REFEREED JOURNAL PAPERS

- J.5 **Howley, I.** & Rosé, C. P. (2016). Towards careful practices for automated linguistic analysis of group learning. *Journal of Learning Analytics*.

- J.4 Clarke, S. N., **Howley, I.**, Resnick, L., & Rosé, C. P. (2016). Student agency to participate in dialogic science discussions. *Learning, Culture and Social Interaction*, 10, 27-39.
- J.3 Shiomi, M., Kanda, T., **Howley, I.**, Hayashi, K., & Hagita, N. (2015). Can a social robot stimulate science curiosity in classrooms? *International Journal of Social Robotics*, 7(5), 641-652.
- J.2 Dyke, G., Adamson, D., **Howley, I.**, & Rosé, C. P. (2013). Enhancing scientific reasoning and discussion with conversational agents. *IEEE Transactions on Learning Technologies*, 6(3), 240-247.
- J.1 Kopena, J.B., Sultanik, E., Naik, G., **Howley, I.K.**, Peysakhov, M., Cicerello, V.A., Kam, M., & Regli, W.C. (2005). Service-Based Computing on Manets: Enabling Dynamic Interoperability of First Responders. In *IEEE Intelligent Systems*, 20(5),17-25.

REFEREED FULL CONFERENCE PAPERS

- C.14. **Howley, I.** & Rosé, C.P. (2018). Empirical Evidence for Evaluation Anxiety and Expectancy-Value Theory for Help Sources. In *Proceedings of the 13th International Conference of the Learning Sciences (ICLS 2018)*.
- C.13 Bassen, J., **Howley, I.**, Fast, E., Mitchell, J., & Thille, C. (2018). OARS: exploring instructor analytics for online learning. In *Proceedings of the 5th ACM Conference on Learning at Scale (L@S 2018)*.
- C.12 Yang, D., Wen, M., **Howley, I.**, Kraut, R. & Rosé, C. P. (2015). Exploring the Effect of Confusion in Discussion Forums of Massive Open Online Courses. In *Proceedings of the 2nd ACM Conference on Learning at Scale (L@S 2015)*, 121-130.
- C.11 Ferschke, O., **Howley, I.**, Tomar, G., Yang, D., & Rosé, C. P. (2015). Fostering Discussion across Communication Media in Massive Open Online Courses. In *Proceedings of the 11th International Conference on Computer Supported Collaborative Learning (CSCL 2015)*.
- C.10 **Howley, I.**, Kanda, T., Hayashi, K., & Rosé, C. (2014). Effects of Social Presence and Social Role on Help-Seeking and Learning. In *Proceedings of the 9th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2014)*.
- C.9 Clarke, S., **Howley, I.**, Rosé, C., & Resnick, L. (2013). Understanding student engagement in classroom dialogue. In *Proceedings of the 15th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI 2013)*.
- C.8 Clarke, S. N., Chen, G., Stainton, C., Katz, S., Greeno, J.G., Resnick, L.B., Dyke, G., **Howley, I.**, Adamson, D., & Rosé, C.P. (2013). The impact of CSCL beyond the online environment. In *Proceedings of the 10th International Computer Supported Collaborative Learning Conference (CSCL 2013)*.
- C.7 Dyke, G., **Howley, I.**, Adamson, D., Rosé, C.P. (2012). Towards academically productive talk supported by conversational agents. In *Proceedings of the 11th International Conference on Intelligent Tutoring Systems (ITS 2012)*, Lecture Notes in Computer Science, 531-540.
- C.6 **Howley, I.**, Mayfield, E., Rosé, C.P. (2011). Missing something? Authority in collaborative Learning. In *Proceedings of the 9th International Computer Supported Collaborative Learning Conference (CSCL 2011)*, 336-373.
- C.5 Kuznetsov, S., Trutoiu, L., Kute, C., **Howley, I.**, Siewiorek, D., & Paulos, E. (2011). Breaking boundaries: Mentoring with wearable computing. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2011)*, 2957-2966.

- C.4 Chaudhuri, S., Kumar, R., **Howley, I.**, Rosé, C.P. (2009). Engaging collaborative learners with helping agents. In *Proceedings of the 14th International Conference on Artificial Intelligence in Education (AIED 2009)*, 365-372.
- C.3 Ritchie, J.M., Sung, R.C.W., Rea, H., Lim, T., Corney, J.R. & **Howley, I.** (2008). The use of non-intrusive user logging to capture engineering rationale, knowledge and intent during the product life cycle. In *Proceedings of the Portland International Conference on Management of Engineering & Technology (PICMET 2008)*, 981-989.
- C.2 Rea, H.J., **Howley, I.K.**, Corney, J.R., Ritchie, J.M., Sung, R., & Salamon, C. (2007). CBBC BAMZOOKi as a tool for engineering design research. In *Proceedings of the Learning with Games Conference*.
- C.1 Grauer, M.J., **Howley, I.K.**, Kopena, J.B., & Regli, W.C. (2007). Towards a format registry for engineering data. In *Proceedings of the American Society of Mechanical Engineers International Design Engineering Technical Conference (IDETC 2007)*.

BOOK CHAPTERS & INVITED PAPERS

- B.6 Rosé, C. P., **Howley, I.**, Wen, M., & Ferschke, O. (2017). Assessment of Discussion in Learning Contexts. *Innovative Assessment of Collaboration*, 81-94.
- B.5 **Howley, I.**, Mayfield, E., & Rosé, C.P. (2013). A Multivocal process analysis of social positioning in study groups. In D. Suthers, K. Lund, C.P. Rosé, C. Teplovs, & N. Law (Eds.), *Productive Multivocality in the Analysis of Group Interactions*, Springer-Verlag Berlin, Heidelberg.
- B.4 **Howley, I.**, Kumar, R., Mayfield, E., Dyke, G., & Rosé, C.P. (2013) Gaining insights from sociolinguistic style analysis for redesign of conversational agent based support for collaborative learning. In D. Suthers, K. Lund, C.P. Rosé, C. Teplovs, & N. Law (Eds.), *Productive Multivocality in the Analysis of Group Interactions*, Springer-Verlag Berlin, Heidelberg.
- B.3 Dyke, G., **Howley, I.**, Kumar, R., & Rosé, C.P. (2013) Towards academically productive talk supported by conversational agents. In D. Suthers, K. Lund, C.P. Rosé, C. Teplovs, & N. Law (Eds.), *Productive Multivocality in the Analysis of Group Interactions*, Springer-Verlag Berlin, Heidelberg.
- B.2 **Howley, I.**, Mayfield, E. & Rosé, C.P. (2013). Linguistic analysis methods for studying small groups. In C. Hmelo-Silver, A. O'Donnell, C. Chan, & C. Chin (Eds.) *International Handbook of Collaborative Learning*, Taylor and Francis, Inc, 184-202.
- B.1 **Howley, I.** & Rosé, C.P. (2011). Modeling the rhetoric of human-computer interaction. *Proceedings of the 14th International Conference on Human-Computer Interaction*, 341-350.

REFEREED ABSTRACTS & SHORT PAPERS

- S.12 **Howley, I.** (2018). If an algorithm is open accessible, and no one can understand it, is it actually open? *Artificial Intelligence in Education Workshop on Ethics in AIED 2018*.
- S.11 **Howley, I.**, Tomar, G., Yang, D., Ferschke, O., & Rosé, C. (2015). Alleviating the negative effect of up and downvoting on help seeking in MOOC discussion forums. In *Proceedings of Artificial Intelligence in Education 2015*.
- S.10 Yang, D., Piergallini, M., **Howley, I.**, & Rosé, C.P. (2014). Forum Thread Recommendation for Massive Open Online Courses. In *Proceedings of the 7th International Conference of Educational Data Mining*.

- S.9 **Howley, I.** & Rosé, C.P. (2014). Undergraduate Attitudes Toward Help-seeking. *The International Conference of the Learning Sciences (ICLS)*.
- S.8 **Howley, I.**, & Newman, T. (2013). Factors impacting community response in an interest-sharing network. In *Proceedings of SIGCHI Conference on Human Factors in Computing Systems (CHI 2013)*, 2283-2286.
- S.7 **Howley, I.** & Rosé, C.P. (2013). Social obstacles to seeking help and the technological affordances that alleviate them. In *Proceedings of the 11th International Conference on Computer Supported Collaborative Learning (CSCL 2013)*, 472-473.
- S.6 **Howley, I.**, Adamson, D., Dyke, G., Mayfield, E., Beuth, J., & Rosé, C.P. (2012). Group composition and intelligent dialogue tutors for impacting students' self-efficacy. In *Proceedings of the 11th International Conference on Intelligent Tutoring Systems (ITS 2012)*, 551-556.
- S.5 **Howley, I.** & Rosé, C.P. (2010). Student dispositions and help-seeking in collaborative learning. In *Proceedings of the 10th International Intelligent Tutoring Systems (ITS 2010)*, 230-232.
- S.4 **Howley, I.**, Chaudhuri, S., Kumar, R., Rosé, C.P. (2009). Motivation and collaborative behavior: An exploratory analysis. In *Proceedings of the 9th International Conference on Computer Supported Collaborative Learning*, 59-61.
- S.3 Kumar, R., Chaudhuri, S., **Howley, I.**, Rosé, C.P. (2009). VMT-Basilica: An environment for rapid prototyping of collaborative learning environments with dynamic support. In *Proceedings of the 9th International Conference on Computer Supported Collaborative Learning (CSCL 2009)*, 192-194. (Best technical design award nominee)
- S.2 **Howley, I.**, Chaudhuri, S., Kumar, R., Rosé, C.P. (2009). Motivation and collaboration on-line. In *Proceedings of the 14th International Conference on Artificial Intelligence in Education (AIED 2009)*, 743-754.
- S.1 Santos, G., **Howley, I.**, Copenhaver, B., & Aleven, V. (2009). Integrating conceptual and procedural knowledge for middle-school math – A cognitive tutoring approach. In *Proceedings of the 14th International Conference on Artificial Intelligence in Education (AIED 2009)*, 534-574.

RESEARCH EXPERIENCE

Stanford University	2015 - 2017
Postdoctoral Researcher	Stanford, CA
Graduate School of Education	
Mentors: Candace Thille, George Siemens	
<ul style="list-style-type: none"> ▪ Conducted interviews to investigate teacher interpretation of learning analytics dashboards ▪ Co-developed a coding manual to identify evidence of student critical reading in log data from a digital annotation tool ▪ Initiated cross-institutional research projects investigating data-driven teacher and student feedback tools ▪ Mentored students, collaborating on various projects from idea inception to meeting with stakeholders, data gathering, analysis, and publication 	
Carnegie Mellon University	2008 - 2015
Graduate Research Assistant	Pittsburgh, PA
Human-Computer Interaction Institute, School of Computer Science	
Mentor: Carolyn Penstein Rosé	
<ul style="list-style-type: none"> ▪ Implemented experiments exploring the impact of reputation systems on help seeking in massive open online course discussion forum and evaluated results ▪ Coordinated team of software engineers to create infrastructure for logging user actions in a 	

- MOOC discussion forum to perform necessary analyses
- Applied computer programming ability to support research learning interventions, resolve logistical constraints of performing experiments, and prepare data for analysis
- Analyzed data with a variety of methods including: statistical analyses, discourse analysis, and qualitative storytelling
- Developed rapport with teachers, creating foundation for research cooperation
- Ran experimental studies in school computer lab, utilizing classroom management skills
- Examined learning domains of: fractions for sixth graders, semi-permeable membranes for ninth grade biology, power plant design for undergraduate mechanical engineering, and wrench design for middle school children.
- First-authored 2 refereed full conference papers, 7 refereed short conference papers, 3 invited book chapters and contributed to 9 other publications

Advanced Telecommunications Research Institute International Winter 2013
 Research Intern Kyoto, Japan
 Artificial Intelligence Department, Intelligent Robotics and Communication Laboratories
 Mentor: Takayuki Kanda

- Examined how perceived and presented social status of human and robotic tutors affect student help-seeking and learning on a biology task
- Designed user studies examining how robot tutors affect help seeking and learning in biology
- Applied help-seeking theory from multiple disciplines to a novel domain
- Worked within an international technical team, representing the learning science perspective
- Researched and compiled a children's dispositional questionnaire for 5th graders interacting with a robot in a science classroom
- Internship culminated in a full paper in proceedings of Human-Robot Interaction 2014

Microsoft Research Summer 2012
 Research Intern Seattle, WA
 Future Social Experiences (FUSE) Labs
 Mentor: Todd Newman

- Worked within a product-oriented engineering industry research lab
- Constructed internal infrastructure for gathering and organizing data for analysis
- Applied discourse analysis methods to analyze interest-sharing network data
- Performed log analyses to better understand user behavior in an online community
- Experimented with automated topic modeling and clustering techniques
- Coordinated with an interdisciplinary team of engineers, designers, and social researchers.
- Published a short paper in proceedings of Human Factors in Computing Systems 2013

Heriot Watt University Summer 2007
 Undergraduate Research Intern Edinburgh, UK
 Manufacturing Engineering Department
 Mentor: Jonathan Corney

- Developed Java software to parse and organize large quantities of generated log files
- Prototyped a data visualization program, displaying information as directed graphs

National Institute of Standards and Technology Summer 2006
 Undergraduate Research Fellow Gaithersburg, MD
 Manufacturing Engineering Lab
 Mentor: Craig Schlenoff

- Expanded upon a large OWL ontology classifying Urban Search and Rescue robots
- Created an engine using JESS to reason over parameters of an ontology

Drexel University 2004 - 2007
 Undergraduate Research Assistant Camden, NJ
 Secure Wireless Agent Testbed

Mentor: William Regli

- Performed extensive work with Semantic Web services on a MANET
- Integrated existing software with a larger, external project

TEACHING & MENTORING EXPERIENCE

Assistant Professor of Computer Science

Williams College

Various courses in the Department of Computer Science

2017 - Present

- CSCI 134: Introduction to Computer Science: Objects, Events, and Graphics (Java)
- CSCI 134: Diving into the Deluge of Data (Python)
- CSCI 011: eTextiles (new course developed)
- CSCI 376: Human-Computer Interaction (new course developed)
- Advising of 2-4 undergraduate research assistants

Postdoc Teaching Certificate

Stanford University

Office of Postdoctoral Affairs

2017

- 70 hours of teaching training, including core requirements and electives
- 5 hours teaching practice with 15 hours teaching preparation
- More details can be found here: www.irishowley.com/website/tTeachingCertificate.html

Three Class Sequence Instructor

Stanford University

Text Mining for Education Majors

2016

Supervisor: Professor Candace Thille

- Designed three 1.5-hour classroom lectures, discussions, and activities for fifteen students
- Created curricula to introduce machine learning and text mining to education students
- Adapted lesson plans to accommodate student feedback, assessments

Guest Lecturer

Carnegie Mellon & Stanford University

Supervisors: Carolyn Rosé, Anind Dey, Candace Thille 2013, 2015, 2016

- Engineering Education and Online Learning Lecture on rational cognitive task analyses
- Computational Models of Discourse Lecture on Systemic Functional Linguistics and the
- Heteroglossia Framework
- Usability Engineering Design Lecture on prototyping

Undergraduate Independent Study Co-Advisor

Carnegie Mellon University

Parallel Computing (Computer Science Education)

2015

Supervisor: Professor Kayvon Fatahian

- Collaborated with an undergraduate and university professor to shape a semester-long program of research for independent study student
- Assisted in the design of online courseware and teaching interventions

Lab Instructor

Carnegie Mellon University

Programming User Interfaces: Prototyping

2013

Supervisor: Professor Anind Dey

- Designed weekly 1.5-hour classroom lectures and activities for twenty students
- Customized syllabus, homeworks, and grading rubrics

Lab Instructor

Carnegie Mellon University

User-Centered Research & Evaluation

2011

Supervisor: Professor Matt Kam

- Lead 1.5-hour lecture and small group work of fifteen students once per week
- Co-developed grading rubrics for homework and projects with fellow instructors

Mentor

Carnegie Mellon University

Pittsburgh Science of Learning Center Summer School

2010, 2011, & 2013

Supervisor: Professor Carolyn Rosé

- Supervised small group projects using dialogue tutors and applied machine learning
- Guided research projects and presentations over one week workshop

Mentoring with the Lilypad Wearable Computer 2010

Gwen's Girls, Carnegie Mellon University

- Lead sessions on using textile Arduino computing with middle school girls in foster care camp

Attendee Carnegie Mellon University
Eberly Center for Teaching Excellence 2011 & 2012

- Attended 10 seminars focusing on pedagogical principles and approaches
- Reviewed by Eberly staff while teaching in a classroom and a microteaching workshop

Teaching references from the Eberly Center for Teaching Excellence available upon request.

SERVICE

Program Committee Member for L@S	2017, 2018
ACM Conference on Learning at Scale	
<ul style="list-style-type: none"> ▪ Participated in conversations shaping the future directions of the research community ▪ Reviewed submitted articles to inform decisions on acceptance to the conference 	
Organizing Committee Member for aWear Conference	2016
Conference on Wearable Technology in Education	
<ul style="list-style-type: none"> ▪ Framed call for participation and website details for conference promotional materials ▪ Served as on-the-ground planning for attendee housing, catering, and venue preparation 	
Article Reviewer	Ongoing
<ul style="list-style-type: none"> ▪ ACM Learning @ Scale, 2016-17; SOLAR Journal of Learning Analytics, 2016, 2017; IEEE Transactions on Learning Technologies, 2015-2016; International Journal of Artificial Intelligence in Education, 2015-17; CHI, 2013, 2017; SIGCSE 2017 	
Onsite Assistance for L@S Program Committee Meeting	2015
ACM Conference on Learning at Scale	
<ul style="list-style-type: none"> ▪ Recorded program committee members' notes and decisions on article acceptance ▪ Assisted with affinity diagramming to organize accepted article genre groupings 	
OurCS Science Organizing Committee	2011, 2013
Conference on Opportunities for Undergraduate Research in Computer Science	
<ul style="list-style-type: none"> ▪ Served on poster review committee and produced poster of accepted poster titles & authors ▪ Participated in a panel on personal experience researching as an undergraduate 	
Creative Technology Nights Volunteer	2008-2010
Carnegie Mellon University, Women@School of Computer Science	
<ul style="list-style-type: none"> ▪ Designed and delivered a lesson on vector graphics to middle school girl after school program ▪ Assisted in weekly programs designed to introduce girls to computer science concepts 	
Founding Officer of Drexel's WiCS	2004-2008
Drexel University, Women in Computing Society	
<ul style="list-style-type: none"> ▪ Co-authored the founding constitution for the WiCS student organization ▪ Served as treasurer and president, developing monthly programming and get-togethers 	