Intelligent Systems Program
30th Anniversary Celebration

A CELEBRATION OF 30 YEARS OF EXCELLENCE IN ARTIFICIAL INTELLIGENCE RESEARCH AND EDUCATION

March 16, 2018
University Club
123 University Place
Pittsburgh, PA 15260
For 30 years, the Intelligent Systems Program (ISP) has been a highly successful interdisciplinary Artificial Intelligence (AI) graduate program at the University of Pittsburgh. We are based on the idea that solving difficult, important problems in specific fields of study is a key way to achieve fundamental advances in AI. Our students and faculty conduct critical research in areas such as educational technology, machine learning, biomedical informatics, natural language processing, and artificial intelligence and law. Through our faculty associations with the School of Medicine, the School of Law, The Dietrich School of Arts and Sciences, and more, we are well-equipped to study AI from a multitude of perspectives.

Thank you for joining us as we celebrate this exciting milestone!

Diane Litman

Director, Intelligent Systems Program

Intelligent Systems Program Directors

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Directors</th>
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<tbody>
<tr>
<td>2016—Present</td>
<td>Diane Litman</td>
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<tr>
<td>2010—2016</td>
<td>Diane Litman and Janyce Weibe</td>
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<tr>
<td>2004—2010</td>
<td>Janyce Weibe</td>
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<tr>
<td>2002—2004</td>
<td>Greg Cooper and Janyce Weibe</td>
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<td>2000—2002</td>
<td>Bruce Buchanan</td>
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<td>1998—2000</td>
<td>Martha E. Pollack</td>
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<td>1995—1996</td>
<td>Kurt VanLehn and Kevin Ashley</td>
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<td>1994—1995</td>
<td>Richmond Thomason and Kevin Ashley</td>
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<td>1986—1994</td>
<td>Alan Lesgold and Richmond Thomason</td>
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7:45–8:30AM  Registration and Continental Breakfast

8:30–8:45AM  Welcome
Diane Litman, Director, Intelligent Systems Program
Paul R. Cohen, Dean, School of Computing and Information

8:45–9:45AM  Opening Keynote
“How Self-Driving Cars will Change the World”
Bryan Salesky, CEO, Argo AI (ENGR ’02)

9:45–10:00AM  Break

10:00–11:00AM  Intelligent Systems Program: Past, Present, and Future
Chair: Alan Lesgold, University of Pittsburgh

11:00–11:15AM  Break

11:15AM–12:30PM  Uses of AI to Enhance Education
Chair: Vincent Aleven, Carnegie Mellon University (ISP ’92G, PhD ’97)
Co-Chair: Min Chi, North Carolina State University (ISP ’06G, PhD ’09)
Co-Chair: Bruce McLaren, Carnegie Mellon University (CS ’84G, ISP ’94G, PhD ’99)

12:30–2:00PM  Lunch and Keynote
“AI: The Good, the Bad, and the Ugly”
Martha E. Pollack, President, Cornell University

2:00–3:15PM  Intelligent Systems in Medicine: From Early Dreams to Routine Systems that Advance Human Health and Transform Healthcare
Chair: Constantin Aliferis, University of Minnesota (ISP ’94G, PhD ’98)

3:15–3:30PM  Break (Move to Ballroom B, 2nd floor)

3:30–4:45PM  Machine Learning: From Research to Practice
Chair: Brano Kveton, Adobe (ISP PhD ’06)

4:45–5:00PM  Closing Remarks
Diane Litman, Director, Intelligent Systems Program

5:00–6:00PM  Reception
Brian Salesky
CEO, Argo AI

Bryan is passionate about incorporating promising robotics technology into products and systems that will improve safety and productivity while enhancing people’s lives. At Carnegie Mellon University National Robotics Engineering Center, Bryan managed a portfolio of the center’s largest commercial programs that included autonomous mining trucks for Caterpillar. In 2007, Bryan led software engineering for Tartan Racing, Carnegie Mellon’s winning entry in the DARPA Urban Challenge. Bryan departed CMU and joined the Google self-driving car team in 2011 to continue the push toward making self-driving cars a reality. While at Google, Bryan was director of hardware development, and was responsible for the development and manufacture of Google’s portfolio of hardware, which included self-driving sensors, computers, and several vehicle development programs. Bryan graduated from the University of Pittsburgh with a bachelor’s degree in computer engineering in 2002.

Martha E. Pollack
President, Cornell University

Dr. Martha E. Pollack is the 14th president of Cornell University. Prior to attaining that position, she served as the Provost and Executive Vice President for Academic Affairs at the University of Michigan. She was a member of ISP faculty from 1991 to 2000 and served as director of the program from 1998 - 2000. She earned her Master’s and PhD in Computer and Information Science at the University of Pennsylvania. Pollack’s research has been in the area of artificial intelligence, where she has published widely on topics including automated planning, natural language processing, temporal reasoning and constraint satisfaction. A particular focus of her work has been the design of intelligent technology to assist people with cognitive impairment, a topic on which she testified before the United States Senate Subcommittee on Aging.
Intelligent Systems Program: Past, Present, and Future

**Chair:** Alan Lesgold, University of Pittsburgh (ISP Dir. ‘86-'94)

**Panelists**
- Kevin Ashley, University of Pittsburgh (ISP Dir. ‘94-'96)
- Greg Cooper, University of Pittsburgh (ISP Dir. ‘02-'04)
- Diane Litman, University of Pittsburgh (ISP Dir. ‘10-Present)
- Martha E. Pollack, Cornell University (ISP Dir. ‘98-'00)
- Richard Thomason, University of Michigan (ISP Dir. ‘86-'95)
- Kurt VanLehn, Arizona State University (ISP Dir. ‘95-'96)

Uses of AI to Enhance Education

**Chair:** Vincent Aleven, Carnegie Mellon University (ISP ‘92G, PhD ‘97)
**Co-Chair:** Min Chi, North Carolina State University (ISP ‘06G, PhD ‘09)
**Co-Chair:** Bruce McLaren, Carnegie Mellon University (CS ‘84G, ISP ‘94G, PhD ‘99)

**Panelists**
- Patricia Albacete, University of Pittsburgh (ISP ‘93G, PhD ‘99)
- Pamela Jordan, University of Pittsburgh (ISP PhD ‘00)
- Chas Murray, Carnegie Learning (ISP ‘99G, PhD ‘05)

Intelligent Systems in Medicine: From Early Dreams to Routine Systems

**Chair:** Constantin Aliferis, University of Minnesota (ISP ‘94G, PhD ‘98)

**Panelists**
- Wendy Chapman, University of Utah (ISP Fac. ‘01-'10)
- Greg Cooper, University of Pittsburgh (ISP Dir. ‘02-'04)
- Barry Blumenfed, RTI International (ISP ‘90G)
- William Hogan, CTRB (ISP ‘99G)

Machine Learning: From Research to Practice

**Chair:** Brano Kveton, Adobe (ISP PhD ’06)

**Panelists**
- Lingjia Deng, Bloomberg L.P. (ISP ‘14G, PhD ’16)
- Mehmet Kayaalp, National Institutes of Health (ISP PhD ‘03)
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<tr>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
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<tr>
<td>“Scoring Causal Graphs with Latent Variables”</td>
<td>Bryan Andrews, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
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<td>“Learning Parsimonious Classification Rules from Gene Expression Data Using Bayesian Networks with Local Structure”</td>
<td>Jeya Balaji Balasbramanian, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-authors: Vanathi Gopalakrishnan and Shyam Visweswaran</td>
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<td>“Factor Aware Legal Analytics and Knowledge Extraction”</td>
<td>Mohammad Falakmasir, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
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<td>“Stereotype Modeling for Problem-Solving Performance Predictions in MOOCs and Traditional Courses”</td>
<td>Roya Hosseini, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-authors: Peter Brusilovsky, Michael Yudelson, and Arto Hellas</td>
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<td>“Accurate Probabilistic Causal Discovery by Post-Processing Calibration”</td>
<td>Fattaneh Jabbari, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-authors: Mahdi Pakdaman Naeini and Gregory F. Cooper</td>
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<td>“Semantic Pleonasm Detection”</td>
<td>Omid Kashefi, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-authors: Omid Kashefi, Andrew T. Lucas, and Rebecca Hwa</td>
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<td>“Kinase Activation Networks; A Causal Learning Approach for Protein Phosphorylation”</td>
<td>Giacomo Nebbia, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
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<td>“Entertainment in Multi-Party Spoken Dialogues at Multiple Linguistics Levels”</td>
<td>Zahra Rahimi, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-authors: Anish Kumar, Diane Litman, Susannah Paletz, and Mingzhi Yu</td>
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<td>“Discovering Sentences for Arguing About the Meaning of Statutory and Regulatory Terms”</td>
<td>Jaromir Savelka, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information</td>
<td>Co-author: Kevin D. Ashley</td>
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“Detecting and Separating Overlapping Digits”
Daniel Steinberg, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information

“Bayesian Network Model for Vaccine Efficacy Trial Datasets for Use in Computer Simulation of Vaccination Policy”
Mohammadamin Tajgardoon, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-authors: Michael M. Wagner, Shyam Viswesvaran, and Richard K. Zimmerman

“Concept-Enhanced Document Representation for Linking Heterogeneous Educational Resources”
Khushboo Thaker, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-author: Daqing He

“Towards Interactive NLP for Clinical Text: An Intelligent Signout Tool”
Gaurav Trivedi, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-authors: Robert Handzel, Shyam Visweswaran, Wendy Chapman, and Harry Hochheiser

“Cascade Dynamics Modeling with Attention-Based Neural Network”
Mengdi Wang, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-author: Daqing He

“Heart Failure Readmission Risk Assessment Using Electronic Health Records from 15,703 Hospital Visits”
Diyang Xue, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-authors: Fuchiang Tsui, Shyam Viswesvaran, and Mark Schmidhofer

“A Study of the Transferability of Influenza Case Detection Systems Between Two Large Healthcare Systems”
Ye Ye, PhD Candidate, Intelligent Systems Program, University of Pittsburgh School of Computing and Information
Co-authors: Michael M. Wagner, Gregory F. Cooper, Jeffrey P. Ferraro, Howard Su, Per H. Gesteland, Peter J. Haug, Nicholas E. Millett, John M. Aronis, Andrew J. Nowalk, Victor M. Ruiz, Arturo López Pineda, Lingyun Shi, Rudy Van Bree, Thomas Ginter, and Fuchiang Tsui