

# SCHEDULE, EAAI-19

**Monday, January 28<sup>th</sup>, 2019:**

**9:00 - 9:10am:** Welcome to EAAI-19.

Michael Wollowski and Nate Derbinsky (EAAI co-chairs)

**9:10 - 10:00am: Outstanding Educator Talk**

Experiments in Teaching AI

*Ashok Goel (Georgia Tech)*

Abstract. With the ongoing growth of interest in AI, we have a responsibility to teach AI to rapidly increasing numbers of students. This also presents a wonderful opportunity to use AI to teach AI, and to use the teaching of AI as a testbed for AI techniques and tools. I will present several experiments in teaching AI, and, in particular, teaching cognitive systems. These experiments include not only face-to-face learning, but also online and blended learning. I will share results from assessments of learning in these classes. I will also draw out some general principles for teaching AI and using AI to teach AI.

SHORT BIO. Ashok Goel is a Professor of Computer Science and the Director of the Ph.D. Program in Human-Centered Computing in the School of Interactive Computing at Georgia Institute of Technology. He conducts research into artificial intelligence and cognitive science with a focus on computational design and creativity. He is the Editor of AAAI's AI Magazine and a Co-Chair of the 41st Annual Meeting of the Cognitive Science Society. He is a Co-Editor of a volume on Blended Learning in Practice: A Guide for Practitioners and Researchers to be published by MIT Press in 2019.

**10:00 – 10:30: Blue sky idea lightning talks**

Chair: *Nate Derbinsky*

- (5 min) Marion Neumann
- (5 min) Abhijit Suresh
- (5 min) Giulia Toti
- (5 min) Zhen Bai
- (5 min) Michael Guerzhoy
- (5 min) Pat Virtue

**10:30 – 10:50am:** Coffee Break

**10:50 – 11:10: Main Track**

Chair: *Michael Wollowski*

- (20 min) An Integrative Framework for Artificial Intelligence Education  
*Pat Langley*

**11:10 – noon: Panel Discussion: How to best teach AI**

Panelists include: *Ashok Goel (Georgia Tech), Pat Langley (Auckland) and Larry Medsker (The George Washington University)*

Moderator: *Michael Wollowski (Rose-Hulman Institute of Tech.)*

The purpose of this panel is to discuss how to best structure an AI course, i.e. which materials to cover and how.

**noon – 1:30pm: Lunch break**

**1:30 – 2:50pm: Special Track: AI for Education and Outreach**

Chair: *Justin Li*

- (20 min) Automatic Generation of Leveled Visual Assessments for Young Learners  
*Anjali Singh, Ruhi Sharma Mittal, Shubham Atreja, Mourvi Sharma, Seema Nagar, Prasenjit Dey and Mohit Jain*
- (20 min) Automating Analysis and Feedback to Improve Mathematics' Teachers' Classroom Discourse  
*Abhijit Suresh, Tamara Sumner, Jennifer Jacobs, William Foland and Wayne Ward*
- (20 min) Get IT Scored using AutoSAS - An Automated System for Scoring Short Answers  
*Yaman Kumar, Swati Aggarwal, Debanjan Mahata, Rajiv Shah, Ponnurangam Kumaraguru and Roger Zimmermann*
- (20 min) Concept Extraction and Prerequisite Relation Learning from Educational Data  
*Weiming Lu, Yangfan Zhou, Jiale Yu and Chenhao Jia*

**2:50 – 3:20pm: Main track**

Chair: *Ananya Christman*

- (20 min) A Preliminary Report of Integrating Science and Computing Teaching Using Logic Programming  
*Yuanlin Zhang, Jianlan Wang, Fox Bolduc, William G Murray and Wendy Staffen*
- (5 min) (Lightning Talk) Khan Academy: A Social Networking and Community Q&A Perspective  
*Sneha Mondal, Akshay Gugnani and Renuka Sindhgatta*
- (5 min) (Lightning Talk) Artificial Intelligence Competencies for Data Science Undergraduate Curricula  
*Andrea Danyluk and Scott Buck*

**3:20 - 3:50pm: Coffee break**

**3:50 – 4:10pm: Special Track: Non-traditional Research Experiences for Undergraduates**

Chair: *Ananya Christman*

- (20 min) From Lab to Internship and Back Again: Learning Autonomous Systems through Creating a Research and Development Ecosystem  
*Trevor Bihl, Todd Jenkins, Chad Cox, Ashley Demange, Kerry Hill and Ed Zelnio*

#### **4:10 – 5:58pm: Birds of a Feather (BoF) Research Challenge**

Chair: *Todd Neller*

- (10 min) Introduction, awarding of prizes  
*Todd Neller*
- (13 min) Computational Intractability and Solvability for the Birds of a Feather Game  
*Richard Hoshino and Max Notarangelo*
- (13 min) Determining Solvability in the Birds of a Feather Card Game  
*Shuto Araki, Juan Pablo Arenas Uribe, Zach Wilkerson, Steven Bogaerts and Chad Byers*
- (13 min) A Monte Carlo Tree Search Player for Birds of a Feather Solitaire  
*Christian Roberson and Katarina Sperduto*
- (13 min) Machine Learning Based Heuristic Search Algorithms to Solve Birds of a Feather Card Game  
*Bryon Kucharski, Azad Deihim and Mehmet Ergezer*
- (13 min) A Neural Network Approach for Birds of a Feather Solvability Prediction  
*Benjamin Sang and Sejong Yoon*
- (13 min) Efficient Solving of Birds of a Feather Puzzles  
*Todd Neller, Connor Berson, Jivan Kharel and Ryan Smolik*
- (13 min) Computer Generation of Birds of a Feather Puzzles  
*Todd Neller and Daniel Ziegler*
- (7 min) Predicting Unsolvable Deals in the Birds of a Feather Solitaire Game  
*Richard Hoshino and Maximilian Kahn*

#### **Tuesday, January 29<sup>th</sup>, 2019:**

**8:10 - 8:40am:** Welcome and Opening Remarks, AAAI Organizational Awards/Honors

**8:40 - 9:40am:** AAAI-19 Invited Talk: Cynthia Breazeal

**9:40 – 10:25am:** Coffee break

#### **10:25 – 11:15am: EAAI-19 Invited Talk**

Future of Work, AI Education, and Public Policy

*Larry Medsker (The George Washington University)*

Abstract. The emerging impact of AI and other automation technologies on all parts of society, including the workforce, is clear. The controversy is about the degree of disruption, for whom, and how public and private sectors should respond. The pace of change is unprecedented compared to previous industrial revolutions and will disproportionately affect different segments of society. Discussions, planning, and policymaking regarding the impact of AI should directly involve AI educators and policymakers in forecasting and reacting to the workforce and educational needs of the future. I will give an overview of the issues and current efforts to prepare for anticipated AI education requirements, including data on the different skills and knowledge needed and how institutions are likely, and unlikely, to respond in the predicted timeframes.

Short Bio. Larry Medsker is a Research Professor in Physics, the former and founding Director of the Data Science graduate program, and a member of the Human-Technology Collaboration and Ph.D. Program group at George Washington University. His research is in hybrid intelligent systems, artificial neural networks, and the nature of humans and machines. Current work focuses on the impact of AI and Data Science on the workforce and on cognitive assistance in human-technology support systems for applications such as Autism Spectrum Disorder. He regularly participates in AAAI Symposia and is the ACM SIGAI Public Policy Officer, writing for and managing the AI Matters blog on public policy.

### **11:15 – 11:35: Main track**

Chair: *Nate Derbinsky*

- (20 min) PopBots: Designing an Artificial Intelligence Curriculum for Early Childhood Education  
*Randi Williams, Hae Won Park, Lauren Oh and Cynthia Breazeal*

### **11:35 – 12:25pm: Panel discussion: The AI4K12 initiative and how to contribute to it**

Panelists include: *Dave Touretzky (CMU), Christina Gardner-McCune (Florida) and Cynthia Breazeal (MIT)*

Moderator: *Nate Derbinsky*

Panelists will provide an overview of the AI4K12 initiative's work on developing national guidelines for teaching AI in K-12 (see AI4K12.org). They will present five "big ideas" that serve as the organizing framework for what every K-12 student should know about AI. The initiative is also developing a curated online resource directory for use by K-12 teachers. The purpose of this panel is to inform the EAAI community about the initiative and invite the community to actively contribute to it by developing AI demos and learning activities appropriate for K-12 students.

**12:25 – 1:55:** Lunch break

### **1:55 – 2:15: Main Track**

Chair: *Michael Wollowski*

- (20 min) A Lightweight Approach to Academic Research Group Management using Online Tools  
*Eric Eaton*

**2:15 – 3:15pm: Special track: Model AI Assignments**

Chair: *Todd Neller*

- (15 min) Implementing a Recommender system using MapReduce  
*Raja Sooriamurthi*
- (15 min) Building a Fake News Detector  
*Michael Guerzhoy and Lisa Zhang*
- (15 min) Using Ultimate Tic Tac Toe to Motivate AI Game Agents  
*Paul Talaga*
- (15 min) The Minecraft Projects  
*Adam Summerville and Joseph Osborn*

**3:15 – 3:40pm: Coffee break**

**3:40 – 5:10pm: Special track: Model AI Assignments**

Chair: *Todd Neller*

- (15 min) RISK AI Project  
*Christopher Archibald*
- (15 min) Nearest Neighbor Classification (with almost no background)  
*Nate Derbinsky and Elena Strange*
- (15 min) Depth First Learning: DeepStack  
*Cinjon Resnick, Avital Oliver, Surya Bhupatiraju and Kumar Krishna Agrawal*
- (15 min) Introduction to Python for Data Science  
*Marion Neumann and Jonathan Chen*
- (15 min) Introducing the Data Science Workflow using Sentiment Analysis  
*Marion Neumann and Zac Christensen*
- (15 min) A Gentle Introduction to the Backpropagation Algorithm and Feedforward Networks  
*Michael Wollowski and Oscar Youngquist*