

## **The Eighth Symposium on Educational Advances in Artificial Intelligence**

*Saturday - Sunday, February 3-4*

*Jefferson Ballroom*

Accepted paper presentations will be 20 minutes each; Model AI Assignment presentations will be 15 minutes each, and poster lightning talks will be 5 minutes each.

### **Saturday, February 3**

**9:00 - 9:10 AM:** Welcome to EAAI-18

*Eric Eaton and Michael Wollowski (EAAI-18 Cochairs)*

### **9:10 - 10:00 AM: Invited Talk: Jill Watson, Family, and Friends: Experiments in Building Automated Teaching Assistants**

*Ashok Goel (Georgia Tech)*

Ashok Goel is a Professor of Computer Science in the School of Interactive Computing at Georgia Institute of Technology in Atlanta, USA. He is also the Director of Georgia Tech's Ph.D. Program in Human-Centered Computing. For more than thirty years, Ashok has conducted research into artificial intelligence, cognitive science and human-centered computing, with a focus on computational design, modeling and creativity. He is the Editor-in-Chief of AAAI's AI Magazine and an Associate Editor of DRS' Design Science Journal. IEEE's Ashok serves on Georgia Tech's Commission on Next in Education, and co-leads its task forces on Future of Pedagogy and Future Learning Systems. As part of Georgia Tech's Online MS in CS program, he developed an early, popular, online graduate-level course in artificial intelligence, and as part of this class, he pioneered the development of Jill Watson, a virtual teaching assistant for answering questions in online discussion forums (<https://www.youtube.com/watch?v=WbCguICyfTA>). Chronicle of Higher Education recently included virtual assistants exemplified by Jill Watson in its list of transformative educational technologies over the last fifty years.

### **10:00 – 10:20 AM: Main Track**

Data Analysis Competition Platform for Educational Purposes: Lessons Learned and Future Challenges

*Yukino Baba, Tomoumi Takase, Kyohei Atarashi, Satoshi Oyama, Hisashi Kashima*

### **10:20 - 10:30 AM: Announcement:**

EAAI-19 Birds of a Feather Undergraduate Research

*Todd Neller*

### **10:30 - 11:00 AM: Coffee Break**

### **11:00 AM – 12:00 PM: Thematic Area: Teaching Neural Networks**

Chair: *Michael Wollowski*

(Model AI Assignment) Understanding How Recurrent Neural Networks Model Text

*Michael Guerzhoy*

(Model AI Assignment) Understanding How Neural Networks Recognize Faces

*Michael Guerzhoy*

(Lightning Talk) Introducing Machine Learning Concepts by Training a Neural Network to Recognize Hand Gestures

*Alessandro Giusti, David Huber, Luca M. Gambardella*

(Lightning Talk) Mighty Thymio for University-level Educational Robotics  
*Jérôme Guzzi, Alessandro Giusti, Gianni A. Di Caro, Luca Maria Gambardella*

Break-out session: Developing Neural Networks materials (20 minutes)

The purpose of the break-out session is for participants to form groups interested in developing or refining existing NN assignments. Group members will introduce each other, define outcomes and develop a project plan.

**12:00 – 1:30 PM:** Lunch break

**1:30 – 2:30 PM: Special Track: Model AI Assignments**

Chair: *Todd Neller*

Biductive Computing: Several Variants of a Universal Paradigm  
*Joshua Eckroth*

Solve a Maze via Search  
*Nate Derbinsky*

Go for a Walk! Pedestrian-Friendly A\* with Learned Cost Functions  
*Zack Butler*

Robot Juggling  
*Ariel Anders*

**2:30 – 3:30 PM: Special Track: AI for Education I**

Chair: *Claudia Schulz*

Diagnosing University Student Subject Proficiency and Predicting Degree Completion in Vector Space  
*Yuetian Luo, Zachary A. Pardos*

Predictive Modeling of Learning Continuation in Preschool Education Using Temporal Patterns of Development Tests  
*Junpei Naito, Yukino Baba, Hisashi Kashima, Takenori Takaki, Takuya Funo*

Gesturing and Embodiment in Teaching: Investigating the Nonverbal Behavior of Teachers in a Virtual Rehearsal Environment  
*Roghayeh Barmaki, Charles Hughes*

**3:30 - 4:00 PM:** Coffee break

**4:00 – 4:30 PM: Special Track: Best Practices**

Chair: *Tom Williams*

On the Importance of a Research Data Archive  
*Benedict Wright, Oliver Brunner, Bernhard Nebel*

Break-out session (10 minutes)

**4:30 – 4:50 PM: Announcements**

(Lightning Talk) A Driving License for Intelligent Systems  
*Martin Kandlhofer, Gerald Steinbauer*

(Lightning Talk) Introducing AI to Undergraduate Students via Computer Vision Projects  
*Kaiman Zeng, Yancheng Li, Yida Xu, Di Wu, Nansong Wu*

Proposal for an Undergraduate Consortium at AAI (10 minutes)  
*Nate Derbinski and James Boerkoel*

**4:50 – 5:00 PM:** Brief break (no coffee)

**5:00 – 5:30 PM: New and Future AI Educator Briefs**

**Sunday, February 4**

**9:00 – 9:50 AM:** AAI opening talk

**10:00 – 11:00 AM: Thematic Area: Teaching Ethics**

Chair: *Michael Wollowski*

Introducing Ethical Thinking about Autonomous Vehicles into an AI Course  
*Heidi Furey, Fred Martin*

(Model AI Assignment Presentation) A Module on Ethical Thinking about Autonomous Vehicles in an AI Course  
*Heidi Furey, Fred Martin*

(Lightning Talk) Addressing the Technical, Philosophical, and Ethical Issues of Artificial Intelligence through Active Learning Class Assignments  
*Pamela K. Fink*

Break-out session: Developing Ethics Materials (*20 minutes*)

The purpose of the break-out session is for participants to form groups interested in developing or refining existing ethics materials. Group members will introduce each other, define outcomes and develop a project plan.

**11:00 – 11:30 AM:** Coffee break

**11:30 AM – 12:30 PM: Special Track: AI for Education II**

Chair: *Eric Eaton*

An e-Learning Recommender that Helps Learners Find the Right Materials  
*Blessing Mbipom, Stewart Massie, Susan Crow*

Dropout Model Evaluation in MOOCs  
*Joshua Gardner, Christopher Brooks*

Investigating Active Learning for Concept Prerequisite Learning  
*Chen Liang, Jianbo Ye, Shuting Wang, Bart Pursel, C. Lee Giles*

**12:30 – 2:00pm:** Lunch break

**2:00 – 2:50 PM: EAAI-18 Outstanding Educator Talk and Presentation of Award**

**Talk:** Playful AI Education

*Todd Neller (Gettysburg College)*

Diane Ackerman observed, “Play is our brain's favorite way of learning.” When thinking of games in AI education, we usually think of Tic-Tac-Toe and game-tree search. Beyond this well-beaten path, we will look more generally at the use of games throughout AI education. Beginning with a discussion of what makes a game especially good for educational purposes, we next look at what playful problem domains can bring to educational experiences throughout various AI subfields. We conclude with a look forward at goals and challenges for playful AI education.

Todd W. Neller is a Professor of Computer Science at Gettysburg College. He received his Ph.D. with distinction in teaching at Stanford University, where he was awarded the George E. Forsythe Memorial Award for excellence in teaching. A game enthusiast, Neller has since enjoyed pursuing game AI challenges, computing optimal play for jeopardy dice games such as Pass the Pigs and bluffing dice games such as Dudo, creating new reasoning algorithms for Clue/Cluedo, analyzing optimal Risk attack and defense policies, designing logic mazes, and designing and organizing game and puzzle research challenges for undergraduates.

**2:50 – 3:30 PM: Panel Discussion: Next Big Steps in AI for Education**

Moderator: *Claudia Schulz (TU Darmstadt)*

Panelists include: *Ashok Goel (Georgia Tech), Todd Neller (Gettysburg College)*

**3:30 – 4:00 PM:** Coffee break

**4:00 – 4:30 PM: Panel Discussion: Non-traditional Research Experiences for Undergraduates**

Moderator: *Joshua Eckroth (Stetson University)*

Panelists include: *Sven Koenig (USC), Nate Derbinsky (Northeastern University)*

We will open a discussion about opportunities for students outside of traditional NSF-funded REU experiences, for example, research-focused courses or senior projects, internships, competitions such as Kaggle, and other informal research experiences. We hope to uncover new ideas about how students may discover and engage in these activities, often under the mentorship of faculty, and ultimately produce publications, presentations, or other artifacts.

**4:30 – 5:30 PM: K-12 Outreach**

Introduction by *Sheila Tejada and David Touretzky*

Demos of Cozmo robot projects. Participants in this undergraduate student workshop will learn how to program the Cozmo robot and create a demo, game, or other interactive activity that illustrates how artificial intelligence enables autonomous robots. They will test their creations with K-12 students at an outreach event at the Louisiana Children’s Museum and give demonstrations during the conference to AAI and EAAI attendees.