11th Annual International Educational Data Mining Conference

July 15 - 18, 2018
BUFFALO, NY

Hosted by
University at Buffalo
School of Engineering and Applied Sciences

educationaldatamining.org/EDM2018
EDM Information

About the Conference

Educational Data Mining is a leading international forum for high-quality research that mines data sets to answer educational research questions that shed light on the learning process. These data sets may originate from a variety of learning contexts, including learning management systems, interactive learning environments, intelligent tutoring systems, educational games, and data-rich learning activities. Educational data mining considers a wide variety of types of data, including but not limited to raw log files, student-produced artifacts, discourse, multimodal streams such as eye-tracking, and other sensor data. The overarching goal of the Educational Data Mining research community is to better support learners by developing data-driven understandings of the learning process in a wide variety of contexts and for diverse learners.

Message from the Chair

It is with great pleasure that I welcome you to the 11th International Conference on Educational Data Mining. The program chairs did a magnificent job putting together a set of contributions at the forefront of our field, having both technical and practical appeal. The conference is primed to attract researchers and professionals doing work in a variety of education environments, and with diverse datasets. With the high student attendance, we are making sure that the EDM community keeps growing, well-positioning itself for long-term success.

I hope you enjoy the venue, and the weather will be kind for all of us to appreciate the views of the Buffalo Harbor and the Niagara Falls. I would like to personally thank our keynote speakers, and also, express the sincere gratitude to our sponsors - ACT, CCNU, CDSE, and YiXue Inc. - for contributing to making this a world-class event.

On behalf of the faculty, staff and student of the University at Buffalo, welcome!

Alexander Nikolaev, PhD
Assistant Professor, Department of Industrial and Systems Engineering;
Director, Social Optimization Laboratory, University at Buffalo, Buffalo, NY; 2018 International Educational Data Mining Conference General Chair
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Aknowledgements

We would like to thank everyone who helped with the EDM 2018 Conference.

EDM Committee: Alexander Nikolaev, General Chair, University of Buffalo; Kristy Elizabeth Boyer, University of Florida; Michael Yudelson, ACT, Inc; Sharon Hsiao, Arizona State University; Joseph Jay Williams, University of Singapore; Mary Jean Blink, tutorgen.com; Collin Lynch, North Carolina State University, and Neil Heffernan, Worcester Polytechnic Institute; Min Chi, North Carolina State University; Irena Koprinska, University of Sydney; Wookhee Min, North Carolina State University, and Jake Whitehill, WPI; Martina Rau, U. Wisconsin Madison; Paul Salvador Inventado, California State University, Fullerton.

University at Buffalo’s School of Engineering and Applied Sciences Staff:
Ria Iliadou, James Friedman, Michelle Bowen, Kaleigh Peri, Maggie Shea, Jennifer Giegel

Students: Ashvini Varatharaj, Worcester Polytechnic Institute; Courtney Burris University at Buffalo; Dayeabasi Martin Akpan, University at Buffalo; Niki Gitinabard, North Carolina State University; Yiqiao Xu, North Carolina State University; Lnting xue, North Carolina State University
Event Details

VENUE

Templeton Landing (Main conference venue)
2 Templeton Terrace, Buffalo, NY 14202
Phone: 716-852-7337

Marriott HARBORCENTER (Workshop venue)
95 Main Street, Buffalo, NY 14203
Phone: 716-852-0049

WALKING DIRECTIONS

(from Marriott HARBORCENTER to Templeton Landing)

Head north on Main St toward Marine Dr - 233 ft
Turn left onto Marine Dr - 0.3 mi
Turn left onto Erie St - 315 ft
Turn right onto Templeton Terrace
Destination will be on the left
WIFI PASSWORD
Templeton Landing: srcguest
Marriott HarborCenter: wifi does not require password

ACCOMMODATIONS
Courtyard Buffalo Downtown/Canalside
1 Canalside, 125 Main Street, Buffalo, NY 14203
Phone: +1- 716-840-9566

Buffalo Marriott HARBORCENTER
95 MAIN STREET, BUFFALO, NEW YORK 14203 USA
Phone: +1-716-852-0049

For more information visit educationaldatamining.org/EDM2018/accommodations

PARKING
Parking is available at both venues.
Niagara Falls Trip

You can attend this trip if you signed up during registration

DATE: TUESDAY, JULY 17, 2018
TIME: 4:30 PM – 9:30 PM

We provide transportation to and from the falls. We do not provide an itinerary for the trip.

POINTS OF INTEREST

- Niagara Falls State Park
- Cave of the Winds
- World Changed Here Pavilion
- Prospect Point Observation Tower
- Maid of the Mist: America’s most amazing boat ride!

For more information visit educationaldatamining.org/EDM2018/niagara-falls
Day 1: Sunday, July 15
BUFFALO MARRIOTT HARBORCENTER

8:00 - 8:30  -  Breakfast

8:30 - 10:15  -  Session 1A
Workshop 1 - Replicate Education: A Workshop on Large Scale Education Replication  |  Larkin Room

8:30 - 10:15  -  Session 1B
Workshop 2 - Educational Data Mining in Computer Science Education (CSEDM)  |  Pan-American I Room

8:30 - 10:15  -  Session 1C
Workshop 3 - Policy and EDM: Norms, Risks, and Safeguards  |  Pan-American II Room

10:15 - 10:30  -  Coffee Break

10:30 - 12:00  -  Session 2A
Workshop 1 - Replicate Education: A Workshop on Large Scale Education Replication  |  Larkin Room

10:30 - 12:00  -  Session 2B
Workshop 2 - Educational Data Mining in Computer Science Education (CSEDM)  |  Pan-American I Room

10:30 - 12:00  -  Session 2C
Workshop 3 - Policy and EDM: Norms, Risks, and Safeguards  |  Pan-American II Room

12:00 - 1:00  -  Lunch Break
| Time       | Session       | Workshop Title                                                                 | Location               |
|------------|---------------|********************************************************************************|------------------------|
| 1:00 - 2:45 | Session 3A    | Workshop 4 - Scientific Findings from the ASSISTments Longitudinal Data Competition | Larkin Room            |
| 1:00 - 2:45 | Session 3B    | Workshop 2 - Educational Data Mining in Computer Science Education (CSEDM)        | Pan-American I Room    |
| 2:45 - 3:00 |               | Coffee Break                                                                   |                        |
| 3:00 - 4:00 | Session 4A    | Workshop 4 - Scientific Findings from the ASSISTments Longitudinal Data Competition | Larkin Room            |
| 3:00 - 4:00 | Session 4B    | Workshop 2 - Educational Data Mining in Computer Science Education (CSEDM)        | Pan-American I Room    |
Day 2: Monday, July 16
TEMPLETON LANDING

8:00 - 8:15 - Breakfast

8:15 - 9:15 - Session 5

Welcoming Remarks - Mykola Pechenizkiy, President of the IEDMS, TU Eindhoven | Lisa Stephens, Assistant Dean for Digital Education, School of Engineering and Applied Sciences, University at Buffalo | Grand Ballroom

Keynote 1: Jim Larimore, Chief Officer, ACT Center for Equity in Learning | Grand Ballroom

9:15 - 9:30 - Coffee Break

9:30 - 10:40 - Session 6A

Deep Learning | Grand Ballroom | Stephen Fancsali, Chair


- 10:00 - 10:20 - Arkar Min Aung, Anand Ramakrishnan and Jacob Whitehill: Who Are They Looking At? Automatic Eye Gaze Following for Classroom Observation Video Analysis

- 10:20 - 10:40 - Adam Winchell, Michael Mozer, Andrew Lan, Philip Grimaldi and Harold Pashler: Textbook Annotations As An Early Predictor of Student Learning

9:30 - 10:40 - Session 6B

Bayesian Methods | Skyline I Room | John Stamper, Chair

- 9:30 - 10:00 - Jihyun Park, Renzhe Yu, Fernando Rodriguez, Rachel Baker, Padhraic Smyth and Mark Warschauer: Understanding Student Procrastination via Mixture Models
10:00 – 10:20 - Huy Nguyen and Chun Wai Liew: Using Student Logs to Build Bayesian Models of Student Knowledge and Skills


10:40 – 10:50 - Coffee Break

10:50 – 12:00 - Session 7A
Predicting Student Performance | Grand Ballroom | Cristobal Romero, Chair

10:50 – 11:20 - Shaghayegh Sahebi and Peter Brusilovsky: Student Performance Prediction by Discovering Inter-Activity Relations

11:20 – 11:40 - Adithya Sheshadri, Niki Gitinabard, Collin Lynch, Tiffany Barnes and Sarah Heckman: Predicting Student Performance Based on Online Study Habits: A Study of Blended Courses

11:40 – 12:00 - Zheng Wang, Xinning Zhu, Junfei Huang, Xiang Li and Yang Ji: Prediction of Academic Achievement Based on Digital Campus

10:50 – 12:00 - Session 7B
Text Mining and NLP | Skyline I Room | Alexander Nikolaev, Chair


11:40 – 12:00 - Gaurav Nanda, Nathan M. Hicks, David R. Waller, Kerrie Douglas and Dan Goldwasser: Understanding Learners’ Opinion About Participation Certificates In Online Courses Using Topic Modeling

12:00 – 1:00 - Lunch Break

1:00 – 2:10 - Session 8A

Advancing Theories of Learning | Grand Ballroom | Kenneth Koedinger, Chair

1:00 – 1:30 - Ayon Sen, Purav Patel, Martina A. Rau, Blake Mason, Robert Nowak, Timothy T. Rogers and Xiaojin Zhu: Machine Beats Human At Sequencing Visuals for Perceptual-Fluency Practice

1:30 – 1:50 - Paulo Carvalho, Min Gao, Benjamin Motz and Ken Koedinger: Analyzing the Relative Learning Benefits of Completing Required Activities and Optional Readings in Online Courses

1:50 – 2:10 - Kenneth Koedinger, Richard Scheines and Peter Schaldenbrand: Is the Doer Effect Robust Across Multiple Data Sets?

1:00 – 2:10 - Session 8B

Multimodal Analytics | Skyline I Room | Sharon Hsiao, Chair

1:00 – 1:30 - Ahcène Boubekki, Shailee Jain and Ulf Brefeld: Mining User Trajectories in Electronic Text Books

1:30 – 1:50 - Ramkumar Rajendran, Anurag Kumar, Kelly E. Carter, Daniel T. Levin and Gautam Biswas: Predicting Learning by Analyzing Eye-Gaze Data of Reading Behavior

1:50 – 2:10 - Joseph Reilly, Milan Ravenell and Bertrand Schneider: Exploring Collaboration Using Motion Sensors and Multi-Modal Learning Analytics
2:30 - 3:20  - Session 9

Dimensionality Reduction  |  Grand Ballroom | Luc Paquette, Chair

2:30 – 3:00  – Robert Sawyer, Jonathan Rowe, Roger Azevedo and James Lester: Filtered Time Series Analyses of Student Problem-Solving Behaviors in Game-based Learning

3:00 – 3:20  – Jessica Andrews-Todd, Carol Forsyth, Jonathan Steinberg and André Rupp: Identifying Profiles of Collaborative Problem Solvers in an Online Electronics Environment

4:00 - 6:00  - Session 10

Poster Session  |  Skyline Room

6:30 - 9:30  - Conference Dinner

Restaurant & Patio
Day 3: Tuesday, July 17
TEMPLETON LANDING

8:00 - 8:15 - Breakfast

8:15 - 9:15 - Session 11
Keynote 2: Jodi Forlizzi, Professor, HCII, Carnegie Mellon University | Design, data, and education: Where are we going? | Grand Ballroom

9:15 - 9:30 - Coffee Break

9:30 - 10:40 - Session 12A
Bayesian Knowledge Tracing | Grand Ballroom | Michel Desmarais, Chair

9:30 - 10:00 - David Halpern, Shannon Tubridy, Hong Yu Wang, Camille Gasser, Pamela Osborn Popp, Lila Davachi and Todd Gureckis: Knowledge Tracing Using the Brain

10:00 - 10:20 - Shirly Montero, Akshit Arora, Sean Kelly, Brent Milne and Michael Mozer: Does Deep Knowledge Tracing Model Interactions Among Skills?

10:20 - 10:40 - Michael Eagle, Albert Corbett, John Stamper and Bruce Mclaren: Predicting Individualized Learner Models Across Tutor Lessons

9:30 - 10:40 - Session 12B
Enrollment Analytics | Skyline I Room | Ilya Goldin, Chair

9:30 - 10:00 - R Wes Crues, Nigel Bosch, Carolyn Anderson, Michelle Perry, Suma Bhat and Najmuddin Shaik: Who They Are and What They Want: Understanding the Reasons for MOOC Enrollment
10:00 - 10:20 - Benjamin Motz, Thomas Busey, Martin Rickert and David Landy: Finding Topics in Enrollment Data

10:20 - 10:40 - Ahmad Slim, Don Hush, Tushar Ojha and Terry Babbitt: Predicting Student Enrollment Based on Student and College Characteristics

9:30 - 10:40 - Session 12C
Industry Track Session I | Skyline II Room | Mary-Jean Blink, Chair

9:30 - 9:50 - Jeffrey Matayoshi, Umberto Granziol, Christopher Doble, Hasan Uzun and Eric Cosyn: Forgetting Curves and Testing Effect in an Adaptive Learning and Assessment System

9:50 - 10:10 - Rebecca Kantar, Keith Mcnulty, Erica Snow, Matthew Emery, Richard Wainess and Sonia Doshi: Constructing Cognitive Profiles for Simulation-Based Hiring Assessments

10:10 - 10:30 - Deepak Agarwal, Nishant Babel and Ryan Baker: Contextual Derivation of Stable BKT Parameters for Analysing Content Efficacy

10:40 - 10:50 - Coffee Break

10:50 - 12:00 - Session 13A
MOOCs | Grand Ballroom | Philip Pavlik, Chair


11:20 - 11:40 - Fareedah Alsaad, Assma Boughoula, Chase Geigle, Hari Sundaram and Chengxiang Zhai: Mining MOOC Lecture Transcripts to Construct Concept Dependency Graphs
10:50 - 12:00 - Session 13B

Course-level Analytics | Skyline I Room | Zachary Pardos, Chair


▶ 11:20 - 11:40 - Zhongzhou Chen, Sunbok Lee and Geoffrey Garrido: Re-designing the Structure of Online Courses to Empower Educational Data Mining

▶ 11:40 - 12:00 - Aurora Esteban, Amelia Zafra Gómez and Cristobal Romero: A Hybrid Multi-Criteria Approach Using A Genetic Algorithm for Recommending Courses to University Students

10:50 - 12:00 - Session 13C

Industry Track Session II | Skyline II Room, Mary-Jean Blink, Chair

▶ 10:50 - 11:10 - Michael Eagle, Ted Carmichael, Jessica Stokes, Mary Jean Blink, John Stamper and Jason Levin: Predictive Student Modeling for Interventions in Online Classes


12:00 - 1:00 - Lunch Break
1:00 - 2:10 - Session 14A
Supporting Teachers | Grand Ballroom | Jacob Whitehill, Chair

1:00 - 1:30 – Jesus Gerardo Alvarado Mantecon, Hadi Abdi Ghavidel, Amal Zouaq, Jelena Jovanovic and Jenny McDonald: A Comparison of Features for the Automatic Labeling of Student answers to Open-ended Questions

1:30 - 1:50 – Ben Naismith, Na-Rae Han, Alan Juffs, Brianna Hill and Daniel Zheng: Accurate Measurement of Lexical Sophistication in ESL with Reference to Learner Data

1:50 - 2:10 – Ruhi Sharma Mittal, Seema Nagar, Mourvi Sharma, Utkarsh Dwivedi, Prasenjit Dey and Ravi Kokku: Using a Common Sense Knowledge Base to Auto Generate Multi-Dimensional Vocabulary Assessments

1:00 - 2:10 - Session 14B
Post-secondary/College Education | Skyline I Room | Erica Snow, Chair

1:00 - 1:30 – Ankita Bihani, Andreas Paepcke, and Quan Tyler: Apportioning Credit for Student Forum Participation

1:30 - 1:50 – Ian Pytlarz, Shi Pu, Monal Patel and Rajini Prabhu: What Can We Learn from College Students’ Network Transactions? Constructing Useful Features for Student Success Prediction

1:50 - 2:10 – Agoritsa Polyzou and George Karypis: Feature Extraction for Classifying Students Based on Their Academic Performance

1:00 - 2:20 - Session 14C
Doctoral Consortium I | Skyline II Room | Collin Lynch & Neil Heffernan, Chairs

1:00 - 1:20 – Alan Mishler and Rebecca Nugent: Clustering students and inferring skill profiles in restricted skill spaces
1:20 – 1:40  – Fatima Al-Raisi: From Concepts to Curricula: Content Exploration, Generation, and Evaluation

1:40 – 2:00  – Johannes Berens and Kerstin Schneider: How to prevent dropouts? Experimental analysis of prevention programs at public and private universities

2:00 – 2:20  – Mehmet Ozer: Effects of STEM Education on Student Scale Scores on State Standardized Algebra, Biology and English End-of-Course Tests

2:20 – 2:30  – Coffee Break

2:30 - 3:35 - Session 15

Award Ceremony  |  Grand Ballroom
Kenneth Koedinger: Award Ceremony and Award Talk

4:00 - 10:00 - Trip to Niagara Falls

Directions to the Falls

4:30pm  – Board the University at Buffalo (UB) buses by the Marriott HarborCenter Hotel’s valet drive on Main Street (street level). We are planning to leave the hotel by 4:45pm.

Upon arrival to Niagara Falls, all passengers will be dropped at the entrance to Niagara Falls State Park. From here, you are free to explore independently.

The park, recognized as the oldest state park in the United States, contains the American Falls, the Bridal Veil Falls, and a portion of the Canadian Falls, also known as the Horseshoe Falls. In addition to facilitating views of the Falls, the park overlooks the Niagara Gorge and allows access to the Cave of the Winds, Goat Island and the Prospect Point Observation Tower.

Some sights (within & near the park) you might consider exploring are:

- Niagara Scenic Trolley  – Aboard this environmentally-friendly trolley, you can enjoy a three-mile 30-minute guided overview of the park, or disembark at the various stops and explore the park’s many attractions.
• **Maid of the Mist** – This world famous boat journey departs from the base of the Observation Tower at Prospect Point for a roundtrip into the churning waters of the American and Horseshoe Falls.

• **Niagara Gorge Discovery Center** – With hands-on learning for all ages, the Discovery Center includes interactive displays and a multi-screen theater showing 12,000 years of the Niagara River.

• **Observation Tower** – This 230-foot overlook provides the only U.S. location to view both the American and Horseshoe Falls. High-speed elevators provide access to the Gorge and boarding area for the Maid of the Mist.

• **Niagara Legends of Adventure Theatre** – Located on the lower level of the Visitors Center, see the film that takes you from the historic to the heroic in a re-creation of legends and real life.

• **Niagara Aquarium** – Located near the park’s Discovery Center, this family favorite is home to more than 1,500 aquatic animals that represent ecosystems ranging from the Great Lakes to coral reefs.

• **Cave of the Winds** – Explore beneath the American Falls, navigating under the falls to the famous Hurricane Deck. Those rain ponchos you see aren’t optional – you’ll be surrounded by the thundering power of water cascading down. Save your footwear and take advantage of the souvenir sandals!

• **Cave of the Winds “World Changed Here” Pavilion** – offers visitors an educational and entertaining perspective on the history and historical significance of Niagara Falls through interactive exhibits including an immersive object theater media presentation.

**Dress code**
Casual, comfortable walking shoes

**For more information:**
- Visit www.niagarafallsusa.com/things-to-do/attractions/
- **Visitors Center (within the park)** – offers all park information, tickets to attractions, savings passes, exhibits and easy access to gift shops and refreshments.

**9:30pm** – Board the UB Buses at the **Niagara Falls State Park** (where you were dropped off) to return to Marriott Buffalo HarborCenter.
Day 4: Wednesday, July 18
TEMPLETON LANDING

8:00 - 8:15 - Breakfast

8:15 - 9:15 - Session 16
Keynote 3: Tiffany Barnes, Professor, North Carolina State University | Grand Ballroom

9:15 - 9:30 - Coffee Break

9:30 - 10:40 - Session 17A
Behavior Mining | Grand Ballroom | Peter Brusilovsky, Chair

9:30 - 10:00 - Weiyu Chen, Andrew Lan, Da Cao, Christopher Brinton and Mung Chiang: Behavioral Analysis at Scale: Learning Course Prerequisite Structures from Learner Clickstreams

10:00 - 10:20 - Xin Du, Wouter Duivesteijn and Mykola Pechenizkiy: ELBA: Exceptional Learning Behavior Analysis

10:20 - 10:40 - Stephan Lorenzen, Niklas Hjuler and Stephen Alstrup: Tracking Behavioral Patterns among Students in an Online Educational System

9:30 - 10:40 - Session 17B
Unsupervised Methods | Skyline I Room | Adam Sales, Chair

9:30 - 10:00 - Shivangi Chopra and Lukasz Golab: Job Description Mining to Understand Work-Integrated Learning
10:00 – 10:20  - Seung Yeon Lee, Hui Soo Chae and Gary Natriello: Identifying User Engagement Patterns in an Online Video Discussion Platform

10:20 – 10:40  - Ying Fang, Keith Shubeck, Anne Lippert, Qinyu Cheng, Genghu Shi, Shi Feng, Jessica Gatewood, Su Chen, Zhiqiang Cai, Philip Pavlik, Jan Frijters, Daphne Greenberg and Arthur Graesser: Clustering the Learning Patterns of Adults with Low Literacy Skills Interacting with an Intelligent Tutoring System

9:30 - 10:45  - Session 17C

JEDM Track  |  Skyline II Room  |  David Pritchard, Chair


10:45 – 11:00  - Coffee Break

11:00 - 12:00  - Session 18A

Modeling Student Learning  |  Grand Ballroom  |  Paulo Carvalho, Chair

10:50 – 11:20  - Zhiqiang Cai, Art Graesser, Leah Windsor, Qinyu Cheng, David Shaffer and Xiangen Hu: Impact of Corpus Size and Dimensionality of LSA Spaces from Wikipedia Articles on AutoTutor Answer Evaluation
Agenda

11:20 - 11:40  - Ángel Pérez-Lemonche, Byron Drury and David Pritchard: *Mining Student Misconceptions from Pre- and Post-Testing Data*

11:40 - 12:00  - Binglin Chen, Matthew West and Craig Zilles: *Towards a Model-Free Estimate of the Limits to Student Modeling Accuracy*

10:50 - 12:00 - Session 18B
EDM Frameworks  |  Skyline I Room  |  Ryan Baker, Chair

10:50 - 11:20  - Shivangi Chopra, Hannah Gautreau, Abeer Khan, Melicaalsadat Mirsaftian and Lukasz Golab: *Gender Differences in Undergraduate Engineering Applicants: A Text Mining Approach*

11:20 - 11:40  - Adam Sales, Anthony Botelho, Thanaporn Patikorn and Neil Heffernan: *Using Big Data to Sharpen Design-Based Inference in A/B Tests*

11:40-12:00  - Michael Backenköhler, Felix Scherzinger, Adish Singla and Verena Wolf: *Data-Driven Approach Towards a Personalized Curriculum*

11:00 - 12:00 - Session 19
Doctoral Consortium II  |  Skyline II Room  |  Collin Lynch & Neil Heffernan, Chairs

11:00 – 11:20  - Christa Cody and Tiffany Barnes: *Analyzing the Associations of Hint Type on Student Behavior and Performance*


11:40 – 12:00  - Karin Hartl: *The Potentials of Educational Data Mining for Decision-Making at German Universities*
12:00 - 1:00 - Session 20
EDM Committee | Marina Room

1:00 - 2:10 - Session 21A
Assessment | Grand Ballroom | Shaghayegh Sahebi, Chair

1:00 - 1:30 - Harvineet Singh, Shiv Kumar Saini, Ritwick Chaudhry and Pradeep Dogga: Modeling Hint-Taking Behavior and Knowledge State of Students with Multi-Task Learning

1:30 - 1:50 - Peng Xu and Michel Desmarais: An Empirical Research on Identifiability and Q-matrix Design for DINA Model

1:50 - 2:10 - Yugo Hayashi and Yugo Takeuchi: The Influence of Task Activity and the Learner’s Personal Characteristics on Self-confidence During an Online Explanation Activity with a Conversational Agent

1:00 - 2:10 - Session 21B
Regression Models | Skyline I Room | Andrew Lan, Chair

1:00 - 1:30 - Connor Cook, Andrew Olney, Sean Kelly and Sidney D’Mello: An Open Vocabulary Approach for Estimating Teacher Use of Authentic Questions in Classroom Discourse

1:30 - 1:50 - Guillaume Durand, Cyril Goutte and Serge Léger: Standard Error Considerations on AFM Parameters

1:50 - 2:10 - Cecilia Aguerrebere, Cristobal Cobo and Jacob Whitehill: Estimating the Treatment Effect of New Device Deployment on Uruguayan Students’ Online Learning Activity
1:00 - 2:20  -  Session 21C

Doctoral Consortium III | Skyline II Room | Collin Lynch & Neil Heffernan, Chair

1:00 - 1:20  - Anthony F. Botelho: Observing Persistence and Mental Effort in the Presence of Failure

1:20 - 1:40  - Avery Harrison: Utilizing Movement and Action for Mathematics Learning in an Online Algebra Game

1:40 - 2:00  - Joseph Reilly and Chris Dede: Dynamic Feedback as Automated Scaffolding to Support Learners and Teachers in Guided Authentic Scientific Inquiry Settings

2:00 - 2:20  - Emily Toutkoushian and Kihyun Ryoo: Developing a Method to Use Log Files to Understand NGSS-Aligned Science Learning

2:10 - 2:30  - Coffee Break

2:30 - 3:30  -  Session 22A

Innovation in Instructional Design | Grand Ballroom | David Azcona, Chair

2:30 - 3:00  - Stephen Fancsali, Michael Yudelson, Susan Berman and Steven Ritter: Intelligent Instructional Hand Offs

3:00 - 3:30  - Khoi-Nguyen Tran, Jey Han Lau, Danish Contractor, Utkarsh Gupta, Bikram Sengupta, Christopher Butler and Mukesh Mohania: Document Chunking and Learning Objective Generation for Instruction Design

2:30 - 3:30  -  Session 22B

Game-based Learning | Skyline I Room | Carol Forsyth, Chair

2:30 - 3:00  - Bita Akram, Wookhee Min, Eric Wiebe, Bradford Mott, Kristy Boyer and James Lester: Improving
Stealth Assessment in Game-based Learning with LSTM-based Analytics

3:00 – 3:30 - Shamya Karumbaiah, Ryan S Baker and Valerie Shute: Predicting Quitting in Students Playing a Learning Game

2:30 - 3:30 - Session 22C

Doctoral Consortium IV | Skyline II Room | Collin Lynch & Neil Heffernan, Chairs


3:10 – 3:30 - Thanaporn Patikorn: Generalizability of MethodsSkills Needed to Solve for Imputing Mathematical Problems from Texts

4:00 - 4:45 - Session 23

Panel Discussion | Grand Ballroom | Michael Yudelson, Chair

Industry panel:
Pak Chung Wong, ACTNext by ACT, Principal Advisor for Data Science
Mary-Jean Blink, TutorGen, COO
Dr. KP Thai, Senior Learning and Data Scientist, Yixue Education
Ying Fang, Central China Normal University

4:45 - 5:00 - Coffee Break

5:00 - 5:30 - Session 24

EDM 2018 Closing | Grand Ballroom | Mykola Pechenizkiy, Chair
Tiffany Barnes, PhD
Professor, North Carolina State University

Tiffany Barnes is Professor of Computer Science at NC State University. Dr. Tiffany Barnes was founding General Chair for EDM 2008, Program Chair for EDM 2009, and General Chair for EDM 2016, and co-Chair for EDM 2017. Tiffany Barnes has served on executive boards for the International Educational Data Mining Society (2008–present), the AI in Education Society (2016–19), and the ACM Special Interest Group on Computer Science Education (2010–16). She is Chair of IEEE Computer STC Broadening Participation, and founded the Research on Equity and Sustained Participation in Engineering, Computing and Technology (RESPECT) conference in 2015, and was Program Chair for the 2014 Foundations of Digital Games conference. She has served as Associate Editor for IEEE Transactions on Learning Technologies (2016–present) and the Journal of Educational Data Mining (2008–2010), and guest editor for special issues on AI in Computer Science Education (IJAIED 2017), the Best of RESPECT (Computing in Science and Engineering, 2016), and Serious Games (IEEE Computer Graphics and Applications 2009). Dr. Barnes is co-director of the STARS Computing Corps, a consortium of colleges and universities that develops leadership and regional partnerships to broaden participation in computing. Dr. Barnes received the 2009 NSF CAREER award to create the technology for a new generation of data-driven intelligent tutors. Her current projects build data-driven intelligent tutors in STEM and novice programming, mine educational game data for actionable insights, research K12 teacher professional development for computer science and computational thinking, and provide research experiences for undergraduates.
Jim Larimore
Chief Officer, ACT Center for Equity in Learning

Jim Larimore is Chief Officer for the Center for Equity in Learning at ACT, where he leads ACT’s strategy to engage students, families, educators and communities to promote equity in learning and success. Jim’s team develops programs, research and partnerships to improve college and career readiness for all students.

Jim’s career in higher education focused on college access and student success. He served as deputy director for student success at the Bill & Melinda Gates Foundation, and as a student affairs leader at campuses including Stanford, Dartmouth, Swarthmore and NYU Abu Dhabi.

Jim served on the Advisory Council that created the Gates Millennium Scholars Program, and now serves on the Advisory Board for Michelle Obama’s Reach Higher Campaign, the Aspen Forum for Community Solutions Advisory Council, the Advisory Board for the UNCF Career Planning Initiative, the Advisory Board for American University’s Center for Postsecondary Readiness and Success, The Board of Directors for the Hope Center for College, Community and Justice at Temple University, and the International Student Affairs Advisory Board for the Universidad de Monterrey in Monterrey, Mexico.
Jodi Forlizzi, PhD  
Professor, HCII, Carnegie Mellon University

Jodi Forlizzi is a Professor of Human-Computer Interaction in the School of Computer Science at Carnegie Mellon University and a co-founder of Pratter.us, a healthcare startup. Her research ranges from understanding the limits of human attention to understanding how products and services evoke social behavior. She designs and researches systems ranging from peripheral displays to social and assistive robots. Her current research interests include designing educational games that are engaging and effective, designing services that adapt to people’s needs, and designing for healthcare. Jodi is a member of the ACM CHI Academy and has been honored by the Walter Reed Army Medical Center for excellence in HRI design research. Jodi has consulted with Disney and General Motors to create innovative product-service systems.
Predicting Student Performance: The Case of Combining Knowledge Tracing and Collaborative Filtering
Solmaz Abdi, Hassan Khosravi and Shazia Sadiq

Hyperparameter Optimization of Machine Learning Models for Educational Datasets
Amritanshu Agrawal, Yiqiao Xu, Abhinav Medhekar and Collin Lynch

Development of an Educational Dashboard for the Integration of German State Universities’ Data
Alexander Askinadze and Stefan Conrad

FAQtor: Automatic FAQ Generation Using Online Forums
Ankita Bihani, Andreas Paepcke and Jeffrey Ullman

A Data-Mining Approach to Detecting Plagiarism in Online Exams
Sudipto Biswas, Edward Gehringer, Dipansha Gupta, Sanket Shahane and Shriya Sharma

Diverse Learners, Diverse Motivations: Exploring the Sentiment of Learning Objectives
Nigel Bosch, R. Wes Crues and Najmuddin Shaik

Semantic Matching Evaluation in ElectronixTutor
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**School of Psychology** is hiring at least **twenty-four** professors in psychology. Candidates should have an earned doctorate specialized in Cyber, Quantitative, Developmental, Educational, Cognitive, Counseling, Social, Industrial and Organizational, and related fields.

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**TO APPLY:** Nominations and expressions of interest will be held in confidence and references will be contacted only with the candidate’s permission. *We will begin reviewing applications immediately and continue until the position is filled.* Applicants should send a letter of application, curriculum vitae, and contact information for three references to CCNU HR (ccnuhr@mail.ccnu.edu.cn).
GENERAL INFORMATION ABOUT THE SCHOOL, THE UNIVERSITY, AND THE CITY

The School of Psychology at Central China Normal University has a history that dates as early as 1924. The School was established in 2005. The School excels in research, teaching, and service nationwide, and it is consistently ranked as one of the top 10 psychology institutions in China. The School is organized into six areas of studies, including cognitive, social and personality, developmental, educational, industrial and organizational, as well as clinical and counseling. It is the home of the Chinese Ministry of Education’s Key Laboratory of Adolescent Cyberpsychology and Behavior. The laboratory has four major research areas: Cyber cognition in learning and teaching, Cyber social behavior, Cyber and adolescent mental health, and Adolescent Internet Culture and Content Security. The research community of the School includes 48 active researchers with 17 professors, 17 associate professors, and 14 lecturers.

The National Engineering Research Center for E-Learning (NERCEL) is located in Central China Normal University. In 2009, Ministry of Science and Technology of PRC approved the establishment of NERCEL. It is the only national level research center in education field. With nationwide advanced research and development in educational technology, NERCEL is home to nine national/ministry/provincial research centers. Since establishment in 2004, NERCEL has developed a strong research team with more than 70 faculty and staff members, including academicians of CAS and CAE, and extinguished scholars listed in national “New Century Talents Project”, “New Century Excellent Talents Project” supported by MOE, and “Chutian Scholar Program” supported by Hubei Province.

Central China Normal University is a key comprehensive university directly under the administration of the Chinese Ministry of Education. As one of the universities on the list of 211 National Education Priority Project, the University is highly recognized as an important base for cultivating brilliant talents for the country, as well as a superior training center for excellent teachers in higher learning institutions and high schools. The university has established extensive academic collaboration and has conducted school-to-school exchanges with universities from over 70 countries. Foreign scholars and teachers are regularly invited to teach at the university.

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Our mission is to help people of all backgrounds achieve their goals for education, lifelong learning, and success in their careers. We are working to develop a unique range of innovative, data-based and theory-grounded learning and assessment systems, which allows us to deliver products incorporating personalized feedback built on analysis of an individual’s behavior, learning styles and means of knowledge acquisition. Most importantly, we recognize Learning is a journey and ACTNext aims to deliver assessments, products, and services which accompany learners on their unique pathways to success.

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About YiXue Inc.

YiXue Inc. is a leading AI-based adaptive learning service provider for K-12 students in China. Headquartered in Shanghai, China, YiXue offers after-school courses for Math, English, Chinese, Physics and Chemistry subjects, powered by its proprietary AI adaptive engine and custom-built courseware. Students on YiXue’s Squirrel AI platform enjoy a supervised adaptive learning experience that has been proven to improve both efficacy and student engagement across YiXue’s online learning platform and offline learning centres.

Known for its AI-driven adaptive learning system, YiXue is one of the most promising education startups in the Chinese market. Through its online learning platform and in over 900 affiliated learning centers across China, YiXue’s proprietary intelligent adaptive system provides each student with customized learning services that help them excel in K12 education.

“Our dream is to provide a virtual tutor that is Socrates, Da Vinci as well as Einstein at the same time for every student, and we believe adaptive learning is the right path”, Derek Haoyang Li, Founder and Chairman of YiXue Inc, said at the AI Era Tech Summit in March 2018.

Utilizing AI and big data techniques, YiXue’s intelligent adaptive learning system continuously monitors and assesses students to determine their weak points, gaps in prior knowledge, and learning outcomes; the system then offers optimized learning solutions and synchronized tutor support to maximize learning efficiency while increasing students’ knowledge, skills and competencies.

As the leading player in the Chinese adaptive learning industry, YiXue now has over 100,000 paying users across 20 provinces in China, its total revenue last year surpassing US $48 million. Yixue plans to integrate more subjects in its up-and-running product and to open approximately 700 more AI-powered adaptive learning centers in 2018, bringing the total to 1,600.

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