

Angela E.B. Stewart
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Education

University of Colorado Boulder
Expected Graduation in July 2020
Department of Computer Science
PhD Student
Advisor: Sidney K. D'Mello

University of Notre Dame
August 2015 – August 2017
Department of Computer Science
PhD Student
Advisor: Sidney K. D'Mello

Auburn University
Graduated May 2015
Department of Computer Science and Software Engineering
Bachelor of Software Engineering
Summa Cum Laude

Awards

- 2020** Best Paper Finalist
10th International Conference on Learning Analytics and Knowledge
- 2019** Best Student Paper
21st ACM International Conference on Multimodal Interaction
- 2018** Distinguished Student Speaker
University of Colorado Boulder Department of Computer Science Colloquia
- 2017** Best Student Paper
10th International Conference on Educational Data Mining
- 2015** Student Symposium First Place Winner
Lexmark International

Publications

Journal Articles - Strictly Peer Reviewed

1. **Angela E.B. Stewart**, Zachary Keirn, and Sidney K. D'Mello. Multimodal modeling of collaborative problem solving in triads. In review for User Modeling and User Adapted Interaction.
2. Chen Sun, Valerie J Shute, **Angela E.B. Stewart**, Jade Yonehiro, Nicholas D. Duran, and Sidney K. D'Mello. A generalized competency model of collaborative problem solving. Computers and Education 2019.

Conference Publications (Full Paper) - Strictly Peer Reviewed

3. Stephen Hutt, **Angela E.B. Stewart**, Julie Gregg, Stephen Mattingly, and Sidney K. D'Mello. Design and implementation of long term face and gaze tracking in the workplace. In review for Proceedings of the 2020 ACM International Joint Conference on Pervasive and Ubiquitous Computing, UBIComp '20.
4. **Angela E.B. Stewart**, Mary J. Amon, Nicholas D. Duran, and Sidney K. D'Mello. Who are we? Diversity in teams predicts computer-mediated collaborative problem solving outcomes. In press for Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, CHI '20. (AR¹ = 24%)
5. Hana Vrzakova, Mary J. Amon, **Angela E.B. Stewart**, Nicholas D. Duran, and Sidney K. D'Mello. Focused or stuck together: multimodal patterns reveal triads' performance in collaborative problem solving. In press for Proceedings of the 10th International Conference on Learning Analytics and Knowledge, LAK '20. (Best Paper Finalist)
6. **Angela E.B. Stewart**, Hana Vrzakova, Chen Sun, Jade Yonehiro, Cathlyn A. Stone, Nicholas D. Duran, Valerie J. Shute, and Sidney K. D'Mello. I say, you say, we say: Using spoken language to model socio-cognitive processes during computer-supported collaborative problem solving. In Proceedings of the 22nd ACM Conference on Computer-Supported Cooperative Work and Social Computing, CSCW '19.
7. Lucca Eloy, **Angela E.B. Stewart**, Mary J. Amon, Caroline Reinhardt, Amanda Michaels, Chen Sun, Valerie J. Shute, Nicholas D. Duran, and Sidney K. D'Mello. Team-level behavioral and physiological irregularity predicts task performance during multiparty collaboration. In Proceedings of the 21st ACM International Conference on Multimodal Interaction, ICMI '19. (Best Student Paper)
8. Hana Vrzakova, Mary J. Amon, **Angela E. B. Stewart**, and Sidney K. D'Mello. Dynamics of visual attention in multiparty collaborative problem solving using multidimensional recurrence quantification analysis. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems, CHI '19. (AR = 24%)
9. **Angela E.B. Stewart**, Zachary A. Keirn, and Sidney K. D'Mello. Multimodal modeling of coordination and coregulation patterns in speech rate during triadic collaborative problem solving. In Proceedings of the 20th ACM International Conference on Multimodal Interaction, ICMI '18. (AR = 15.4%)
10. **Angela E.B. Stewart** and Sidney K. D'Mello. Connecting the dots towards collaborative AIED: Linking group makeup to process to learning. In Proceedings of the 19th International Conference on Artificial Intelligence in Education, AIED '18. (AR = 25%)
11. **Angela E.B. Stewart**, Nigel Bosch, and Sidney K. D'Mello. Generalizability of face-based mind wandering detection across task contexts. In Proceedings of the 10th International Conference on Educational Data Mining, EDM '17. (Best Student Paper, AR = 25%)
12. **Angela E.B. Stewart**, Nigel Bosch, Huili Chen, Patrick Donnelly, and Sidney K. D'Mello. Face forward: Detecting mind wandering from video during narrative film comprehension. In Proceedings of the 18th International Conference on Artificial Intelligence in Education, AIED '17. (AR = 30%)

Conference Publications (Short Paper) - Strictly Peer Reviewed

13. Stephen Hutt, Jessica Hardey, Robert Bixler, **Angela E.B. Stewart**, Evan Risko, and Sidney K. D'Mello. Gaze-based detection of mind wandering during lecture viewing. In Proceedings of the 10th International Conference on Educational Data Mining, EDM '17. (AR = 42%)

Extended Abstracts - Strictly Peer Reviewed

14. **Angela E.B. Stewart**, Nigel Bosch, Huili Chen, Patrick J. Donnelly, and Sidney K. D'Mello. Where's your mind at? Video-based mind wandering detection during film viewing. In Proceedings of the 2016 Conference on User Modeling Adaptation and Personalization, UMAP '16. (AR = 41%)

¹ When applicable, acceptance rate (AR) of publications is indicated.

Workshop and Symposia Proceedings - Peer Reviewed

15. Sidney K. D'Mello, **Angela E.B. Stewart**, Mary J. Amon, Chen Sun, Nicholas D. Duran, Valerie J. Shute. Towards dynamic intelligent support for collaborative problem solving. Approaches and Challenges in Team Tutoring Workshop at the 20th International Conference on Artificial Intelligence in Education, AIED '19.

Conference Presentations

Full Presentations

1. **Angela E.B. Stewart**, Hana Vrzakova, Chen Sun, Jade Yonehiro, Cathlyn A. Stone, Nicholas D. Duran, Valerie J. Shute, and Sidney K. D'Mello. I say, you say, we say: Using spoken language to model socio-cognitive processes during computer-supported collaborative problem solving. In Proceedings of the 22nd ACM Conference on Computer-Supported Cooperative Work and Social Computing, CSCW '19.
2. Lucca Eloy, **Angela E.B. Stewart**, Mary J. Amon, Caroline Reinhardt, Amanda Michaels, Chen Sun, Valerie J. Shute, Nicholas D. Duran, and Sidney K. D'Mello. Team-level behavioral and physiological irregularity predicts task performance during multiparty collaboration. In Proceedings of the 21st ACM International Conference on Multimodal Interaction, ICMI '19.
3. **Angela E.B. Stewart**, Zachary A. Keirn, and Sidney K. D'Mello. Multimodal modeling of coordination and coregulation patterns in speech rate during triadic collaborative problem solving. The 20th ACM International Conference on Multimodal Interaction, ICMI '18, Boulder, CO, USA.
4. **Angela E.B. Stewart** and Sidney K. D'Mello. Connecting the dots towards collaborative AIED: Linking group makeup to process to learning. The 19th International Conference on Artificial Intelligence in Education, AIED '18, London, UK.
5. **Angela E.B. Stewart**, Nigel Bosch, and Sidney K. D'Mello. Generalizability of face-based mind wandering detection across task contexts. The 10th International Conference on Educational Data Mining, EDM '17, Wuhan, China.
6. **Angela E.B. Stewart**, Nigel Bosch, Huili Chen, Patrick Donnelly, and Sidney K. D'Mello. Face forward: Detecting mind wandering from video during narrative film comprehension. The 18th International Conference on Artificial Intelligence in Education, AIED '17, Wuhan, China.

Short Presentations

7. Stephen Hutt, Jessica Hardey, Robert Bixler, **Angela E.B. Stewart**, Evan Risko, and Sidney K. D'Mello. Gaze-based detection of mind wandering during lecture viewing. The 10th International Conference on Educational Data Mining, EDM '17, Wuhan, China.

Poster Presentations

8. **Angela E.B. Stewart**, Hana Vrzakova, Chen Sun, Jade Yonehiro, Cathlyn Adele Stone, Nicholas D. Duran, Valerie J. Shute, and Sidney K. D'Mello. I say, you say, we say: Using language to model shared knowledge construction during collaborative problem solving. Computing Research Association Grad Cohort for Underrepresented Minorities and People with Disabilities, CRA-URMD '19.
9. **Angela E.B. Stewart**, Nigel Bosch, and Sidney K. D'Mello. Detecting mind wandering during film viewing. Tapia Celebration of Diversity in Computing, Tapia '17.
10. **Angela E.B. Stewart**, Nigel Bosch, Huili Chen, Patrick J. Donnelly, and Sidney K. D'Mello. Video-based mind wandering detection during film viewing. Computing Research Association Grad Cohort for Women, CRA-W '17.

Research Experience

University of Colorado Boulder

Emotive Computing Lab, August 2017 – Present

Assisted in the design of a complex multimodal, multiparty collaborative problem solving experiment. Implemented and managed data collection of individual difference measures, eye gaze, video, audio, physiology, mouse click, and log data of 101 triads engaging in multiple STEM tasks. Analyzed this multimodal data for modeling collaborative problem solving processes and outcomes. Resulted in seven strictly peer-reviewed conference publications with one conference publication and one journal article in review.

University of Notre Dame

Emotive Computing Lab, August 2015 - August 2017

Designed and implemented a multimodal experiment on STEM collaborative problem solving. Collected and analyzed individual difference measures, eye gaze, video, and audio data from 37 triads engaged in a computer programming task. Built machine learning models of mind wandering using video-based data of students interacting with computers in multiple tasks. Resulted in three strictly peer-reviewed conference publications.

Auburn University

Research Experience for Undergraduates, June 2014 - August 2014

Developed a security protocol for unmanned aerial vehicles. Tested potential security breaches in the protocol.

Teaching Experience

2019 Sante Fe Institute
Teaching Assistant

Assisted a primary instructor in virtually answering questions from approximately 450 students enrolled in an online nonlinear dynamics, mathematical and computational approaches course.

2018 Sante Fe Institute
Course Instructor

Managed approximately 350 students in an online nonlinear dynamics, mathematical and computational approaches course by monitoring message boards and ensuring student understanding of the content.

2017 University of Colorado at Boulder
Teaching Assistant

Taught two lab sections of a data structures course with approximately 25 students each, prepared weekly quizzes (coding-based and multiple choice), and mentored student during office hours.

Work Experience

2016 Lexmark International
User Experience Design Intern

Designed and evaluated aspects of a user-facing device management portal, including a scoped and global search mechanic.

2015 Lexmark International
Firmware Engineering Intern

Designed and implemented test cases for firmware's conformance to network protocols.

2013 - Auburn University

2015 Information Systems Assistant

Assisted university staff in general information systems upkeep.

Funding

- 2019** SIGCHI Student Travel Grants
\$1,800
Association for Computing Machinery – Special Interest Group Computer-Human Interaction
Travel Funding
- Departmental Conference Scholarship
\$1,200
University of Colorado at Boulder Computer Science Department
Travel Funding
- CRA Grad Cohort Workshop for URMD
\$1,000
Computing Research Association
Travel Funding
- 2018** 19th International Conference on Artificial Intelligence in Education
\$1,500
AIED Society
Travel Funding
- 2017** Deans Graduate Assistantship
\$21,800
University of Colorado Boulder
Graduate School Funding
- Computer Science Departmental Fellowship
\$3,000
University of Colorado Boulder
Graduate School Funding
- 18th International Conference on Artificial Intelligence in Education
10th International Conference on Educational Data Mining
\$1,500
AIED Society/EDM Society
Travel Funding
- CRA-Women Grad Cohort Workshop
\$1,000
Computing Research Association
Travel Funding
- Tapia Celebration of Diversity in Computing
\$1,000
National Science Foundation
Travel Funding

- 2016** CRA-Women Grad Cohort Workshop
\$1,000
Computing Research Association
Travel Funding
- Tapia Celebration of Diversity in Computing
\$1,000
IBM
Travel Funding
- Dean's Fellowship
\$95,400
University of Notre Dame
Graduate School Funding
- GEM Fellowship
\$40,000
National GEM Consortium
Graduate School Funding

Service

- 2019** Colorado STEM Academy Science Fair Judge
- University of Colorado Boulder Girls Who Code Co-Facilitator
- 2018 -** Aucitat President and Board of Directors
- 2019** Serves on the leadership team for a nonprofit that creates mobile games to teach teenagers interpersonal skills, with the goal of reducing teenage dating violence. Leads the AI branch of the organization, where we focused on personalized gaming.
- The Coding School AI and Machine Learning Curriculum Lead
Manages a team of three and develop lessons plans for underrepresented middle and high school students to learn AI and machine learning.
- 2018** International Conference on Multimodal Interaction Local Committee
- 2017** Educational Data Mining Program Committee
- 2016 -** University of Notre Dame Computer Science Outreach Instructor
- 2017** Supervised by Dr. Tijana Milenkovic
Co-taught two workshops to high school students on computer science topics, including affective computing, algorithms, and Python coding.
- The Coding School Core Curriculum Developer
- University of Notre Dame Black Graduate Student Association Treasurer
- 2016** University of Notre Dame Expanding Your Horizons Workshop Organizer
Supervised by Dr. Tijana Milenkovic

Co-organized and taught a workshop for middle school girls to learn topics in computer science, including affective computing and network analysis.

Northern Indiana Regional Science Engineering Fair Judge

2015 - Saint Joseph Public Library Web Development Teacher
2016

2014 - Auburn University National Society of Black Engineers Pre-College Initiatives Chair
2015 Auburn University National Society of Black Engineers Elementary School STEM Tutor

2014 Auburn University National Society of Black Engineers A Walk for Education

Professional Memberships

International Artificial Intelligence in Education Society
Association for Computing Machinery
Association for Computing Machinery - SIG-CHI
Association for Computing Machinery - Women

Mentorship (Masters Students)

2019 Ashwin Vasani

Mentorship (Undergraduate Students)

2018 - Caroline Reinhardt
2020

2017 - David Blair
2019

2017 Samantha Scaglione

2016 Mae Raab
Eugene Choi