Stephen J. Hutt

CONTACT INFORMATION

430 UCB, 1111 Engineering Drive
Boulder, CO 80309, USA

650-460-0599
stephen.hutt@me.com

EDUCATION

University of Colorado, Boulder, Boulder, CO

Ph.D., Computer Science, *Expected:* July 2020
Advisor: Sidney D'Mello, Ph.D

University of Notre Dame, Notre Dame, IN

Ph.D. Student, Computer Science,
Advisor: Sidney D'Mello, Ph.D

University of York, York, United Kingdom

M.Eng.,*First Class Honours* Computer Science with Artificial Intelligence, July 2015
Thesis Topic: *Evolutionary Techniques for Developing Computer Poker Agents*
Advisor: Dan Franks, Ph.D

University of California, Santa Cruz, Santa Cruz, CA

Exchange Year, Computer Science, 2012-2013

RESEARCH INTERESTS

Machine Learning, Affective Computing, Adaptive Education, Evolutionary Computation, Non-Standard Comptutation, Human Computer Interaction

RESEARCH EXPERIENCE

PhD Researcher January 2018 - Present
Institute of Cognitive Science,
University of Colorado, Boulder
Supervisor: Sidney D'Mello, Ph.D

Explored how Artificial Intelligence and big data techniques can be applied in education. Researched Fair AI in the context of educational software and worked with two large scale datasets to explore how current methods commonly used in education contexts scale up. Designed and implemented real time gaze based Mind Wandering detection and interventions.

PhD Researcher September 2015 to August 2017
Department of Computer Science,
University of Notre Dame
Supervisor: Sidney D'Mello, Ph.D

Designed and implemented a multimodal experiment on detecting affect and engagement during classroom learning. Collected eye gaze, video, and interaction data from students whilst they interacted with a Biology Intelligent Tutoring System. Built machine learning models of mind wandering using eye gaze data of students interacting with computers in multiple tasks.

Masters Researcher September 2014 to July 2015
Department of Computer Science,
University of York
Supervisor: Dan Franks, Ph.D

Designed and implemented a framework to train agents to play Texas Hold'em poker. Using genetic algorithms and evolutionary computation approaches I trained multiple agents playing against each other as well as expert and pre-trained agents.

Journal Articles

1. M. Gardener, **S. Hutt**, D. Kamentz, A. L. Duckworth, and S. K. D'Mello, "How does high school extracurricular participation predict bachelor's degree attainment? it's complicated," *Journal of Research on Adolesence*, In Press
2. **S. Hutt**, K. Krasich, C. Mills, N. Bosch, S. White, J. R. Brockmole, and S. K. D'Mello, "Automated gaze-based mind wandering detection during computerized learning in classrooms," *User Modeling and User-Adapted Interaction*, Jun. 2019, ISSN: 1573-1391. DOI: 10.1007/s11257-019-09228-5
3. B. M. Galla, E. P. Shulman, B. Plummer, M. Gardner, **S. Hutt**, J. Goyer, A. Finn, S. D'Mello, and A. Duckworth, "Why high school grades are better predictors of on-time college graduation than are admissions test scores: The role of self-regulation and cognitive ability.," *American Educational Research Journal*, 2019. DOI: 10.3102/0002831219843292
4. K. Krasich, R. McManus, **S. Hutt**, M. Faber, S. K. D'Mello, and J. R. Brockmole, "Gaze-based signatures of mind wandering during real-world scene processing," *Journal of Experimental Psychology: General*, vol. 147, no. 8, p. 1111, 2018. DOI: 10.1037/xge0000411

Conference Publications - Strictly Peer Reviewed

5. **S. Hutt**, M. Gardner, A. L. Duckworth, and S. K. D'Mello, "Evaluating fairness and generalizability in models predicting on-time graduation from college applications," in *Proceedings of the 12th International Conference on Educational Data Mining. International Educational Data Mining Society.*, C. F. Lynch, A. Merceron, M. Desmarais, and R. Nkambou, Eds., 2019, pp. 79–88
6. E. Jensen, **S. Hutt**, and S. K. D'Mello, "Generalizability of sensor-free affect detection models in a longitudinal dataset of tens of thousands of students," in *Proceedings of the 12th International Conference on Educational Data Mining. International Educational Data Mining Society.*, C. F. Lynch, A. Merceron, M. Desmarais, and R. Nkambou, Eds., 2019, pp. 324–329
7. **S. Hutt**, J. F. Grafsgaard, and S. K. D'Mello, "Time to scale: Generalizable affect detection for tens of thousands of students across an entire school year," in *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, CHI '19, Glasgow, Scotland UK: ACM, 2019, 496:1–496:14, ISBN: 978-1-4503-5970-2. DOI: 10.1145/3290605.3300726
8. C. Stone, A. Quirk, M. Gardener, **S. Hutt**, A. L. Duckworth, and S. K. D'Mello, "Language as thought: Using natural language processing to model noncognitive traits that predict college success," in *Proceedings of the 9th International Conference on Learning Analytics & Knowledge*, LAK19, Tempe, AZ, USA: ACM, 2019, pp. 320–329, ISBN: 978-1-4503-6256-6. DOI: 10.1145/3303772.3303801
9. K. Krasich, **S. Hutt**, C. Mills, C. A. Spann, J. R. Brockmole, and S. K. D'Mello, "MindTS: Testing a brief mindfulness intervention with an intelligent tutoring system," in *Proceedings of the 19th International Conference on Artificial Intelligence in Education (AIED'18)*, London, UK, Jun. 2018
10. **S. Hutt**, M. Gardener, D. Kamentz, A. L. Duckworth, and S. K. D'Mello, "Prospectively predicting 4-year college graduation from student applications," in *Proceedings of the 8th International Conference on Learning Analytics and Knowledge*, LAK '18, Sydney, New South Wales, Australia: ACM, 2018, pp. 280–289, ISBN: 978-1-4503-6400-3. DOI: 10.1145/3170358.3170395

11. J. DeBenedetto, **S. Hutt**, L. Fause, A. Liu, and N. Kremer-Herman, "Placating plato with plates of pasta: An interactive tool for teaching the dining philosophers problem," in *2017 IEEE Frontiers in Education Conference (FIE)*, Oct. 2017, pp. 1–9. DOI: 10.1109/FIE.2017.8190443

12. **S. Hutt**, C. Mills, N. Bosch, K. Krasich, J. Brockmole, and S. D'Mello, "Out of the fr-eye-ing pan: Towards gaze-based models of attention during learning with technology in the classroom," in *Proceedings of the 25th Conference on User Modeling, Adaptation and Personalization*, UMAP '17, Bratislava, Slovakia: ACM, 2017, pp. 94–103, ISBN: 978-1-4503-4635-1. DOI: 10.1145/3079628.3079669

13. **S. Hutt**, J. Hardey, R. Bixler, A. Stewart, E. Risko, and S. K. D'Mello, "Gaze-based detection of mind wandering during lecture viewing," in *Proceedings of the 10th International Conference on Educational Data Mining. International Educational Data Mining Society.*, 2017

14. **S. Hutt**, C. Mills, S. White, P. J. Donnelly, and S. K. D'Mello, "The Eyes Have It: Gaze-based Detection of Mind Wandering during Learning with an Intelligent Tutoring System.," in *Proceedings of the 9th International Conference on Educational Data Mining. International Educational Data Mining Society.*, T. Barnes, M. Chi, and M. Feng, Eds., 2016, pp. 86–93

Selected Conference Presentations

15. J. R. Brockmole, K. Krasich, **S. Hutt**, and S. K. D'Mello, *Attention-aware cyberlearning to detect and combat wandering minds.* 59th Annual Meeting of the Psychonomic Society., New Orleans, LA, USA, Nov. 2018

16. A. Quirk, **S. Hutt**, M. Gardner, A. Duckworth, and S. K. D'Mello, *Analyzing open-ended descriptions of extracurricular participation for evidence of character development*, Promoting Character Development Among Diverse Children and Adolescents: The Roles of Families, Schools, and Out-Of-School-Time Youth Development Programs, Philadelphia, PA, USA., Oct. 2018

17. B. M. Galla, R. N. Baelen, H. Fiore, **S. Hutt**, and A. Shenhav, *Compared to self-immersion, mindfulness reduces social media desires and boosts academic self-control in undergraduates*, International Symposium for Contemplative Research (ISCR), Arizona, USA, Nov. 2018

18. K. Krasich, R. McManus, **S. Hutt**, M. Faber, S. K. D'Mello, and J. R. Brockmole, *Gaze-based indices of mind wandering during real-world scene processing.* Annual Workshop on Object Perception, Attention, and Memory., Vancouver, BC, Canada., Nov. 2017

Manuscripts In Review

19. **S. Hutt**, K. Krasich, J. R. Brockmole, and S. K. D'Mello, "Design of a gaze-based attention-aware technology to address mind wandering during learning," in *Proceedings of the 28th Conference on User Modeling, Adaptation and Personalization*, UMAP '20, New York, NY, USA: ACM, In Review

20. E. Jensen, T. Umada, **S. Hutt**, and S. K. D'Mello, "What you do predicts how you do: Prospectively modeling student quiz performance using generic activity features in online learning environments," *Proceedings of the 13th International Conference on Educational Data Mining. International Educational Data Mining Society.*, In Review

21. **S. Hutt**, A. E. B. Stewart, J. Gregg, S. Mattingly, and S. K. D'Mello, "Breaking free from the lab: Feasibility of longitudinal facial expression and eye-gaze tracking in the workplace," in *Proceedings of the ACM Interactions Mobile Wearable Ubiquitous Technology*, New York, NY, USA: ACM, In Review

FUNDING

Department of Computer Science Student Travel Award — May 2019
University of Colorado Boulder

Department of Computer Science Student Travel Award — March 2018
University of Colorado Boulder

College of Engineering Student Travel Award — March 2018
College of Engineering and Applied Sciences,University of Colorado Boulder

Dean's Graduate Assistantship, CU Boulder — August 2017
College of Engineering and Applied Sciences,University of Colorado Boulder

SIGCHI Student Travel Grant — August 2016
SIGCHI

Social Responsibilities of Research Fellowship — May 2016
John J. Reilly Center for Science, Technology, and Values

Student Travel Scholarship — April 2011
University of York

AWARDS

Outstanding Service Award, Department of Computer Science — May 2019
Outstanding Service Award, Department of Computer Science — May 2018
James Chen Best Student Paper Award, UMAP 2017 — July 2017
SIGCHI Student Scholar — March 2017
Outstanding Student Award — July 2011

TEACHING EXPERIENCE

Graduate Part Time Instructor — Spring '19
Introduction to Artificial Intelligence
Department of Computer Science,
University of Colorado Boulder

Designed and implemented the curriculum, assignments and examinations. Held weekly classes, managed course staff of four people, and mentored students during office hours. 106 students enrolled

Teaching Assistant — Fall '17
Introduction to Computer Science
Instructor: David Knox, Ph.D
Department of Computer Science,
University of Colorado Boulder

Taught two lab sections with approximately 30 students each, prepared weekly assignments and autograders, assisted with the devlopment of examinations, and mentored students during office hours.

Teaching Assistant — Fall '15
Design and Analysis of Algorithms
Instructor: Danny Z. Chen, Ph.D
Department of Computer Science,

University of Notre Dame

Assisted with the development of written assignments and examinations. Mentored students during weekly office hours and review sessions. 94 students enrolled

Tutor Fall '13 - Spring '15
Mathematics and Computer Science
Highcliffe School

PROFESSIONAL MEMBERSHIP
Association for Computing Machinery
International Educational Data Mining Society
Society for Learning Analytics Research
ACM Special Interest Group on Computer-Human Interaction (SIGCHI)
ACM Special Interest Group on Computer Science Education (SIGCSE)

JOURNAL REVIEWS
Computers in Human Behaviour
Advances in Methods and Practices in Psychological Science
Journal of Research on Educational Effectiveness
Review of Research in Education

CONFERENCE REVIEWS
International Conference on Educational Data Mining (EDM) 2017, 2018, 2019
International Conference on Artificial Intelligence in Education (AIED), 2017, 2018, 2019
International Conference on Multimodal Interaction (ICMI) 2019
ACM Conference on Computer-Supported Cooperative Work and Social Computing 2019
ACM CHI Conference on Human Factors in Computing Systems 2019

MENTORSHIP

Masters Students

Tetsumichi Umada	2019 - 2020
Phu Dang	2018
Sayali Sonawane	2018

Undergraduate Students

Frank Stinar	2019 - 2020
David Blair	2017-2019
Kendyll Kraus	2017
Jessica Hardey	2016-2017

High School Students

Jack Rogers	2019
Connor Malley	2019
Taylor Kovacs	2016-2017

LEADERSHIP AND SERVICE
Program Committee, Artificial Intelligence in Education 2020
Program Committee, Educational Data Mining 2020
Student Lead, CS Orientation, CU Boulder, 2019
Student Lead, CS Open House, CU Boulder, 2019
Local Committee, ICMI 2018
Graduate Committee, Department of Computer Science, CU Boulder, 2017-2019

Chair, Computer Science Graduate Student Association, CU Boulder, 2018, 2019
Committee to review graduate degree requirements, Department of Computer Science, CU Boulder 2018
Founder Member, Computer Science Graduate Student Association, CU Boulder, 2018
Program Committee, Educational Data Mining 2017
Judge, N. Indiana Regional Science and Engineering Fair 2016
Technical Manager for student run theatre, York, UK 2013-2015

Professional Experience

Senior Timetabling Assistant & Curriculum Support March 2014 - July 2017
Highcliffe School

Worked with Senior & Middle Management to implement a curriculum model that satisfies national and internal constraints. Managed post-16 curriculum enrolment, insuring that all legal requirements were met and that students had a suitable program of study. Developed of a variety of online education solutions.

IT Technician & Timetabling Assistant July 2011 - March 2014
Highcliffe School

Worked with a wide variety of stakeholders to provide IT solutions. Communicated with users with a variety of skill levels and devloping solutions to complex education problems.

Seasonal IT Assistant July 2008 - April 2011
Bury & Knight

First line IT support to a variety of users. Duties included diagnosing a wide range of problems and reporting appropriately and Scheduling engineer time where appropriate.