



Erik J Schlicht, PhD

Curriculum Vitae

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EDUCATION

2007

Doctorate (PhD)

Cognitive and Brain Sciences
Minor: Human Factors
University of Minnesota

1998

BSc

Psychology; Minor: Biology
Minnesota State Univ., Mankato

KEY SKILLS

Statistical Programming



Analytics



SQL



Human-Computer Interaction



Machine Learning and AI



Visualization and Tableau



AWARDS

2009

Teaching Distinction
Harvard University

2013

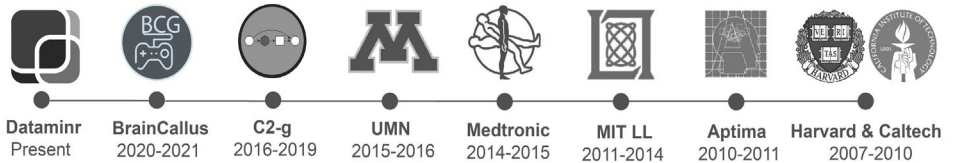
US Patent
#8407026

INTRODUCTION

I utilize techniques from AI, machine learning and cognitive science to predict human performance under uncertainty and risk. I am currently working as a Sr Research Scientist at Dataminr, developing unsupervised methods for process learning. In the past, I conducted research at Harvard University, MIT, Caltech and the University of Minnesota.

Please visit my research website to see samples of my work.

PROFESSIONAL EXPERIENCE



2020 - 2021

BrainCallus Gaming
Founder

I was working as the Founder of the BrainCallus Gaming Project, which sought to improve psychiatric care by leveraging a combination of mobile gaming, machine learning and cognitive science. The games produce metrics of player perception, decision-making and movements. These metrics are useful for quantifying symptoms of psychiatric disorders and can be used as features for machine learning algorithms that predict clinically relevant information.

2016 - 2019

Computational Cognition Group
Founder

I was the Founder of the Computational Cognition Group and was responsible for all technical and business aspects of the company. During my tenure as founder, I gained attention for leveraging multifidelity methods and computational gaming to design decision-support systems. I also developed a novel model to improve the prediction of NFL outcomes by exploiting oddsmaker decision biases.

PROFESSIONAL EXPERIENCE (CONT.)

2015 - 2016

University of Minnesota
Researcher

I returned to the University of Minnesota to conduct research in the HumanFIRST Lab where I developed machine learning algorithms (e.g., Bayesian Networks, Support Vector Machine regression, Binary classification with Lasso) to predict human driving behavior. These models were then used to estimate the risk associated with candidate transportation technology by using the predictive models in multifidelity simulations and resulted in invited research talks at SAMSI and Stanford University.

2014 - 2015

Medtronic
Human Factors Engineer

At Medtronic, I was part of a team that was responsible for developing next-generation Deep-Brain-Stimulation devices to help treat diseases, such movement disorders.

2011 - 2014

MIT Lincoln Laboratory
Technical (Research) Staff

I was a researcher at MIT Lincoln Laboratory conducting research related to national security and was responsible for developing a novel model to predict the decisions of interacting humans. The model defined a quantitative method to combine the results from low-fidelity simulations (e.g., novice in an online simulator) with high-fidelity simulations (e.g., expert in an immersive simulator) to evaluate when inexpensive low-fidelity data can be used to as a proxy for expensive high-fidelity simulations. Moreover, I was part of an effort to use Serious Games to develop quantitative models of operational decision-making.

2010 - 2011

Aptima
Cognitive Scientist

I was a Cognitive Scientist at Aptima and led several SBIR and STTR efforts on projects related to national security. In the brief time I was at Aptima, I was awarded one OSD contract for a biologically inspired approach to automated scene estimation (BIS-E), in addition to successfully securing one patent for quantifying human reactions to communications.

2007 - 2010

Harvard University and Caltech
Postdoctoral Associate

I developed a low-fidelity game to quantitatively investigate human decision-making in a competitive (zero-sum) task. This research received an enormous amount of public interest and has been covered by several major media outlets (see list below), and resulted in a publication that ranks in the top 5% of all research output, according to metrics by Altmetric.

REPRESENTATIVE PUBLICATIONS

Schlicht, E.J. (2017). Exploiting oddsmaker bias to improve the prediction of NFL outcomes. arXiv: Statistical Applications

Schlicht, E.J. & Morris, N. (2017). Estimating the risk associated with candidate transportation technology through multifidelity simulation. arXiv: Statistical Applications

Schlicht, E.J. & Morris, N. (2015). Risk evaluation of in-vehicle sign information. MnDOT Technical Report Number 2016-18.

Schlicht, E.J., Lee, R., Wolpert, D., Kochenderfer, M., & Tracey, B.(2012). Predicting the behavior of interacting humans by fusing data from multiple sources. In the Proceedings of the Twenty-Eighth Conference of Uncertainty in Artificial Intelligence, (UAI-2012). [30% Acceptance rate]

Schlicht, E.J., Shimojo, S., Camerer, C., Battaglia, P.R., & Nakayama, K. (2010). Human wagering behavior depends on opponents faces, PLoS ONE, 5(7): e11663. doi:10.1371/journal.pone.0011663. [Top 5% paper across all research output, according to Altmetric]

Schlicht, E.J., & Schrater, P.R. (2007). Impact of coordinate transformation uncertainty on human sensorimotor control. Journal of Neurophysiology, 97(6), pp. 4203-14.

Schlicht, E.J., & Schrater, P.R. (2007). Effects of visual uncertainty on grasping movements. Experimental Brain Research, 182(1), 47-57.

Stankiewicz, B.J., Legge, G.E., Mansfield, J.S., & **Schlicht, E.J.** (2006). Lost in virtual space: Studies in human and ideal spatial navigation. Journal of Experimental Psychology: Human Perception and Performance, 32, 688-704.

Schrater, P.R., & **Schlicht, E.J.** (2006). Internal models for object manipulation: Determining optimal contact locations, Technical Report TR 06-003, University of Minnesota.

REPRESENTATIVE PRESS

Scientific American; ABC News (Boston, Channel 5); Boston Globe; New York Times (Freakonomics); Discover Magazine; Men's Health; Reader's Digest; BPS Research Digest; Life Hacker; Mind Hacks

RECOMMENDATIONS

Available upon request

REPRESENTATIVE PRESENTATIONS

2017

Stanford University
Intelligent Systems Laboratory

2017

SAMSI
Summer Program on Transportation Statistics

2013

PAX East
MIT Lincoln Lab Panel: Serious Games for Quantifying Human Performance

2010

MIT
Prelec Neuroeconomic Group

2009

MIT
Computational Cognition Group

2009

Harvard Medical School
Wolfe Laboratory

2007

Caltech
Shimojo and Andersen Laboratories