Stephen Hoover

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Education

Ph.D. in Complex Systems and Brain Sciences — In Progress
Florida Atlantic University, Center for Complex Systems and Brain Sciences [1] — Boca Raton, FL
Machine Perception and Cognitive Robotics Laboratory
Notable Coursework: Artificial Intelligence, Information Theory, Deep Learning

B.S. (Hons.) in Mathematics — May 2020
Florida Atlantic University, Department of Mathematical Sciences [2] — Boca Raton, FL
Notable Coursework: Computational Statistics, Linear Programming, Reinforcement Learning

Visiting Student — June 2018
University of Warwick, School of Engineering, Biomedical Sensors Laboratory — Coventry, UK

Recent Work Experience

Graduate Teaching Assistant | *Dept. of Mathematics, Florida Atlantic University* — Aug. 2021 – Present
- Multi-variable Calculus and Discrete Mathematics — Boca Raton, FL

Technical Skills

Languages: Python, R, Liquid
Frameworks: Jekyll, Shiny
Developer Tools: Git, LaTeX
Libraries: numpy, scipy, pandas

Projects

Approximating satisfiability (SAT) | *Comp. Complexity, NumPy, Tidy Data, Linear Algebra* — Aug. 2021 – Present
- Writing a program to automate scheduling by collecting data, formatting data and to output a schedule with multiple constraints.
- Approximating solution to satisfiability (SAT) problem of NP complete complexity class using cost functions.

Quantum Circuits and AES | *Python, Linear Algebra* — Aug. 2019 – Dec. 2019
- Reduced computational complexity of implementing the substitution box (SBox) of the Advanced Encryption Scheme (AES) on Quantum Circuits by shrinking Toffoli Depth

SniffR | *R, Shiny* — Aug. 2019 – Dec. 2019
- A free and open source (FOSS) application scientific data analysis and for reducing tensors to a feature matrix.

Webmaster | *Jekyll, Liquid, Git* — May. 2018 – Aug. 2018
- Built a website for the *Machine Perception and Cognitive and Robotics Laboratory*

Papers and Presentations

- E. Stark, S. Hoover, A. DeCesare, and E. Barenholtz, *Medicine has gone to the dogs: Deep learning and robotic olfaction to mimic working dogs*, IEEE Technology and Society Magazine, 37 (2018), pp. 55–60
- E. Stark, J. Pitt, A. N. Wicaksono, K. Milanovic, V. Lush, and S. Hoover, *Odorveillance and the ethics of robotic olfaction [opinion]*, IEEE Technology and Society Magazine, 37 (2018), pp. 16–19
- S. Hoover, *Machine olfaction using deep learning artificial neural networks*, Biomedical engineering oral presentation, National Council of Undergraduate Research, April 2018

Professional Memberships and Extracurriculars

Presenter/Member | Artificial Intelligence (AI) Safety Denmark Reading Group — Feb.2020 – Present
- Over 200 videos reviewing and discussing peer reviewed papers on AI Safety. Video URL:

Officer/Member | Society of Industrial and Applied Mathematics (SAIM) — 2019 – Present
- Florida Atlantic University Student Chapter — Boca Raton, FL

Supporting Member | Electronic Frontier Foundation (EFF) — 2020 – Present

[1] Interdisciplinary Ph.D. program between College of Engineering and Computer Science and College of Science.
[2] A National Security Agency (NSA) Center of Academic Excellence in Cyber Defense Research