Ryan Strauss

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Education

The University of North Carolina at Chapel Hill August 2020 – May 2022
M.S. in Computer Science *Chapel Hill, NC*

Davidson College August 2016 – May 2020
B.S. in Computer Science with Honors, Manga Cum Laude *Davidson, NC*

Experience

Applied Scientist II June 2022 – Present
Amazon *Seattle, WA*

- Designing and productionalizing ML solutions for forecasting the performance of Sponsored Products ad campaigns, and developing auto-bidding algorithms for ROI-constrained bidding.

Graduate Research Assistant August 2020 – May 2022
UNC Chapel Hill *Chapel Hill, NC*

- Advisor: Junier Oliva
- Developing machine learning algorithms that can gracefully handle incomplete information.

Graduate Teaching Assistant January 2022 – May 2022
UNC Chapel Hill *Chapel Hill, NC*

- Course: Deep Learning

Applied Scientist Intern June 2021 – August 2021
Amazon *Remote*

Software Developer June 2020 – August 2020
FinSiteful *Davidson, NC*

- Worked on the initial development of the FinSiteful iOS app and backend infrastructure.

Teaching Assistant August 2019 – May 2020
Davidson College Math & Computer Science *Davidson, NC*

- Held office hours for peers to ask questions about course material, programming languages, debugging, and problem solving strategies.

Undergraduate Research Fellow May 2019 – March 2020
Davidson College DRIVE Lab *Davidson, NC*

- Showed that reinforcement learning can be used to learn a steering algorithm for redirected walking in virtual reality which can, for the first time, surpass the performance of traditional approaches.

Teaching Assistant May 2020
FRIB-TA Machine Learning Summer School *East Lansing, MI*

- Created deep learning lecture materials and hands-on exercises.
- Provided one-on-one help for participants.

Undergraduate Research Fellow August 2018 – May 2019
Davidson College ALPhA Lab *Davidson, NC*

- Developed deep learning methods to aid the analysis of nuclear physics experiments.
- Worked in collaboration with the AT-TPC Group at the National Superconducting Cyclotron Laboratory and with the ETHER group at the Jefferson National Lab.

Lead Student Maker February 2017 – May 2019
Davidson College Makerspace *Davidson, NC*

- Actualized creative projects for students, faculty, and staff with technologies such as 3D printing, virtual reality, Raspberry Pi, drones, and laser cutting.

Software Developer May 2018 – July 2018
Project PRONTO *Davidson, NC*

- Developed MERN web applications which are now used by Davidson students and faculty.

Publications

[1] **Ryan R. Strauss** and Junier B. Oliva. "Arbitrary Conditional Distributions with Energy". In: *35th Conference on Neural Information Processing Systems*. Neural Information Processing Systems, 2021.

[2] R. Solli et al. "Unsupervised learning for identifying events in active target experiments". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* (2021), p. 165461. ISSN: 0168-9002. DOI: https://doi.org/10.1016/j.nima.2021.165461. URL: https://www.sciencedirect.com/science/article/pii/S0168900221004460.

[3] **Ryan R. Strauss** et al. "A Steering Algorithm for Redirected Walking Using Reinforcement Learning". In: *IEEE Transactions on Visualization and Computer Graphics* 26.5 (2020), pp. 1955–1963. DOI: 10.1109/TVCG.2020.2973060.

[4] M.P. Kuchera et al. "Machine learning methods for track classification in the AT-TPC". In: *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 940 (2019), pp. 156–167. ISSN: 0168-9002. DOI: https://doi.org/10.1016/j.nima.2019.05.097. URL: https://www.sciencedirect.com/science/article/pii/S0168900219308046.

Presentations

[1] *A Steering Algorithm for Redirected Walking Using Reinforcement Learning*. IEEE VR. 2020.

[2] *Fairness and Explainability in AI*. Jay Hurt Hub for Innovation and Entrepreneurship. 2019.

[3] *Task-Aware Multi-Task Agents*. Davidson College Computer Science Coffee. 2019.

[4] *Machine Learning for Scientific Discovery*. Davidson College Computer Science Coffee. 2018.

Awards

Senior Computer Science Award May 2020
Davidson College *Davidson, NC*

Technical Skills

Languages: Python, Java, C/C++
Tools: Jax, TensorFlow, Scikit-Learn, NumPy, Pandas, Matplotlib, Git/GitHub, LaTeX, SQL, PySpark

Coursework

Computer Science: Machine Learning, Artificial Intelligence, Deep Learning, Natural Language Processing, Generative Modeling, Visual Recognition with Transformers, Theory of Computation, Analysis of Algorithms, Operating Systems, Data Visualization, Web Development, Programming Languages, Game Theory, Concurrent & Parallel Computing, Databases
Mathematics: Mathematical Modeling, Linear Algebra, Discrete Structures, Linear & Discrete Optimization, Graph Theory, Multivariable Calculus, Probability