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GitHub

Alex Trevithick

Education

Williams College, Williamstown, MA — 2017 - 2021 (expected)

Bachelor of Arts, Computer Science and Mathematics; GPA: 3.92

University of Oxford, Oxford, UK — 2019 - 2020

Williams Exeter Programme at Oxford; GPA: 4.0

The Hotchkiss School, Lakeville, CT — 2015 - 2017

Cum Laude

Publications

A. Trevithick, and B. Yang, "GRF: Learning a General Radiance Field for 3D Scene Representation and Rendering," arXiv, 2020

Research Interests

Computer Vision, 3D Reconstruction, Neural Rendering, Theory of Deep Learning, Implicit Neural Representations

Research Experience

Summer Research Fellow – Williams College — 2020

- Researched implicit representations and Neural Tangent Kernel of MLPs with periodic activations

Wilmers Fellow – University of Oxford — 2020

- Researched generalization in neural scene representations with Bo Yang
- Extended neural radiance fields to synthesize novel views from sparse inputs and predict novel scene representations in a single forward pass

REU Researcher – Washington State University — 2019

- Researched brain-computer interaction for architectural manipulation in the lab of Mona Ghandi
- Implemented ensemble model with input from multiple modalities for emotional recognition in real time

High School Honors Science Program – Michigan State University — 2016

Technical Skills

Python (TensorFlow, Jax), CUDA, Java, C, SQL

Awards

2020 Robert G. Wilmers, Jr. 1990 Fellowship

2020 Williams College Summer Research Fellowship

2019 John Houghton Harris Memorial Scholarship

2018 Alumni-Sponsored Internship Program Grant

2017 Amherst College $20,000 Schupf Scholarship for Research (nominated)

Teaching Experience

Teaching Assistant in Measure Theory & Hilbert Spaces – Williams College 2020

- Hold seven review sessions per week to present solutions to hardest problems

Teaching Assistant in Introduction to Computer Science – Williams College 2019

- Administer Python programming lab help for seven hours per week and grade student labs

Teaching Assistant in Computational Linear Algebra – Williams College 2018

- Grade problem sets in R and hold weekly help session

Industry Experience

Data Analyst Intern – Haystack Search, Brooklyn, NY 2018

- Cleaned and analyzed data with SQL for predictive analytics and hyperlocal product search

Projects

Image Regression with Periodic Activations and Neural Tangents (Code) 2020

- Proposed a novel implicit neural representation architecture, SINONE
- Showed simple architecture performs on par with the Fourier positional embedding in both theory and in practice in the task of image regression

ChessAI (Code) 2020

- Implemented alpha-beta pruning with quiescence search for arbitrary two-player games and constructed a novel chess heuristic for automated chess playing

References

- Bo Yang, Assistant Professor at The Hong Kong Polytechnic University, bo.yang@cs.ox.ac.uk
- Cesar Silva, Hagey Family Professor of Mathematics at Williams College, csilva@williams.edu
- Leo Goldmakher, Assistant Professor at Williams College, leo.goldmakher@williams.edu