Isaac Neal

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SKILLS

PROGRAMMING

Python (preferred) • C++ • C# • C
Java • Haskell • TypeScript (some)
Agda (some) • Assembly (some)

TOOLS/GENERAL

TensorFlow/Keras • PyTorch • Git/GitHub
PyTest • Django • Docker • 3D Graphics

MATH

Statistics • Linear Algebra • Calculus
Discrete • Pure Math • Game Theory

PUBLICATIONS

PEER REVIEWED PAPERS

I. Neal, S. Seth, G. Watmough, and M. S. Diallo (2022). Population Estimation Using Representation Learning. *Scientific Reports 12, 5185 (2022)*. Available online: `https://www.nature.com/articles/s41598-022-08935-1`

I. Neal, S. Seth, G. Watmough, and M. S. Diallo (2021). Towards Sustainable Census Independent Population Estimation in Mozambique. In *AI for Public Health Workshop, ICLR 2021*. Available online: `https://arxiv.org/pdf/2104.12696.pdf`

DISSERTATIONS

I. Neal (2020). Automatic Segmentation of Rural Buildings in Ultra-High Resolution Satellite Imagery. Available online: `https://isaacery.github.io/Dissertation.pdf`

COURSEWORK

MACHINE LEARNING

- Training deep neural networks
- Computer vision with CNNs
- K-Means clustering

COMPUTER GRAPHICS

- Distributed raytracing in C++
- Rasterization in Python
- Augmented reality with Blender

COMPUTER HARDWARE

- Processor design in Verilog
- Cache coherency simulation
- Java (subset) to AVR compiler

EXPERIENCE

AGENTIC | Machine Learning Engineer

October 2021 – Present | San Francisco, CA | `https://agentic.ai`

- Seed-stage startup offering real time training and deployment of AI players to game developers using deep learning
- Spearheaded machine learning efforts as first hire, bringing deep knowledge of machine learning and shaping the technical direction of the product
- Proactively researched and implemented concepts from the RL/ML literature, leveraging expertise in deep learning to develop innovative features, leading to significant improvements in performance
- Modernized and optimized existing tensorflow codebase, improving the speed and efficiency of the platform and reducing technical debt
- Worked with edge deployment, very low model inference latency requirements, and rapid training of models in a data sparse environment

UNIVERSITY OF EDINBURGH | Research Assistant (Computer Vision)

May 2020 – October 2021 | Edinburgh, Scotland

- Worked in a multi-organization team on a computer vision project with UNICEF focused on automatic population estimation
- Directly implemented and applied machine learning models to solve problems, including full data preprocessing and training deep models
- Facilitated communication between different technical backgrounds by reviewing literature and writing reports and papers, culminating in two first author peer reviewed publications

STATISTICS.COM | Technical Intern

June 2019 – August 2019 | Arlington, VA

- Launched a new website serving thousands of active monthly users
- Optimized web services using A/B testing to better improve client services
- Worked on front-end including UI and layout design

EDUCATION

UNIVERSITY OF EDINBURGH | Computer Science (BSc Honours) | First class

September 2016 - May 2020 | Edinburgh, Scotland

- Specialized in areas including deep learning, computer vision, computer graphics, and computer architecture and design
- Technical focused degree with emphasis on fundamentals of CS, providing a great foundation on which to learn new tools and languages
- Exceptional academic record **(average A2 ≈ GPA 3.9)**

UNIVERSITY OF VIRGINIA | Computer Science (BSc Honours)

August 2018 - May 2019 | Charlottesville, VA

- Applied theoretical foundation to problem solving, in fields like internet scale applications, security/cryptography, compilers, and computer graphics
- Won the machine learning for Virginia (ML4VA) 2019 prize offered by Dr. Rich Nguyen for a team project tensorflow image classifier