

# Isaac Neal

MACHINE LEARNING ENGINEER

San Francisco, CA, USA

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## Skills

<b>Machine Learning</b>	TensorFlow/Keras, PyTorch, NumPy, Computer Vision, Generative AI, Agents
<b>Programming</b>	Python, C++, C#, Haskell, TypeScript
<b>Math</b>	Statistics, Linear Algebra, Calculus, Discrete Math, Pure Math, Game Theory
<b>Tools</b>	Git/GitHub, PyTest, LaTeX, Unix, GCP
<b>Games</b>	Computer Graphics, Unity, SDK integration

## Experience

### Agentic

San Francisco, CA

MACHINE LEARNING ENGINEER

Oct. 2021 - Sep. 2024

- Built service for game developers, including AAA studios, to train game-playing AI models for automatic game testing.
- Designed and optimized **TensorFlow/Keras** models for rapid training and **deployment on edge devices** with very low model size and latency.
- Developed **C++ SDK** for real-time inference on device, including **custom tflite model wrappers**.
- Implemented **machine learning** and **reinforcement learning** techniques from academic literature.
- Led development of an **LLM-based agent** for on device game control.

### The University of Edinburgh

Edinburgh, Scotland

RESEARCH ASSISTANT (COMPUTER VISION)

May 2020 - Oct. 2021

- Worked on a project in partnership with UNICEF to predict population maps using **computer vision** techniques.
- Developed and applied **deep learning models** and **representation learning** to efficiently analyze satellite imagery and estimate population distribution in data-scarce regions.
- Published two **peer-reviewed papers** as **first author**.
- Collaborated with a multi-organization team, bridging technical and domain knowledge.

## Education

### The University of Edinburgh

Edinburgh, Scotland

COMPUTER SCIENCE (BSc) · FIRST CLASS

Sep. 2016 - May 2020

- Specialized in areas including **deep learning**, **computer vision**, and **computer graphics**.
- Exceptional academic record (**average A2  $\approx$  GPA 3.9**).

## Publications

**I. Neal**, S. Seth, G. Watmough, and M. S. Diallo (2022). Census-independent Population Estimation Using Representation Learning. *Scientific Reports* 12, 5185 (2022).

*Summary:* Applied **transfer learning** and **convolutional neural networks (CNNs)** on satellite imagery to estimate rural populations in Mozambique. Visualized learned representations to understand model behavior.

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*.

*Summary:* Developed a method using convolutional neural networks (CNNs), **remote sensing**, and transfer learning for fine-scale population estimates.

Available online: <https://arxiv.org/pdf/2104.12696.pdf>