Reece Shuttleworth

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Education

- **Massachusetts Institute of Technology** Cambridge, MA
  Master of Engineering, Computer Science & Cognitive Science *Feb 2024 – May 2025*
  - Trying to understand how and why deep neural nets work.
- **Massachusetts Institute of Technology** Cambridge, MA
  Bachelor of Science, Computer Science & Cognitive Science *Sep 2021 – Dec 2023*
  - Coursework: Algorithms I & II, Machine Learning, Deep Learning, Linear Algebra, Programming, Probability, Computational Cogsci, AI Ethics, Game Theory, Hardware for Deep Learning
  - GPA: 4.9/5.0

Experience

- **Google DeepMind** New York City, NY
  Incoming Intern *Jun 2024 – Aug 2024*
  - Research Engineering team.
- **Cleanlab** San Francisco, CA
  Machine Learning Engineering Intern *Jan 2024 – Feb 2024*
  - Developed and implemented novel ways to detect data issues in order improve data quality.
  - Wrote in production code to detect low quality text with high precision.
- **Numenta** Redwood City, CA
  Software/Machine Learning Engineering Intern *May 2023 – Aug 2023*
  - Led R&D of novel applications of parameter efficient fine-tuning methods for large language models to meet strict customer and hardware constraints.
  - Wrote code to support efficient sparse neural networks and rigorously reviewed literature to ensure alignment with state-of-the-art methods and best practices.
- **MIT Computer Science and AI Laboratory** Cambridge, MA
  Research Scientist *Dec 2021 – May 2023*
  - Studied large language models and their use cases. Published two separate peer reviewed papers in NeurIPS FMDM ‘22 and PNAS ’22.

Selected Work

- **Sparsity in Transformers** (*github.com/reeceshuttle/958*)
  - Systematically measured the sparsity of weights and attention scores across several transformer models.
- **Bias in BERT Models** (*github.com/reeceshuttle/63950)*
  - Examined bias in BERT models and used finetuning with a novel loss function to try to reduce bias.
- **MIT Pokerbots** (*github.com/reeceshuttle/poker-bot)*
  - Placed in the top 10% of entries in 2023 MIT Pokerbots competition and awarded a cash prize.
- **Gabor filter-constrained CNNs** (*github.com/samacqua/gabor-constrained-nns*)
  - Trained unique Convolutional Neural Networks by seeking inspiration from the human brain.
- **PyTorch, but in NumPy** (*github.com/reeceshuttle/numpytorch)*
  - Implemented basic PyTorch functionality from scratch using only NumPy arrays. Neural networks converge and perform well on non-trivial problems.

Technical Skills

- **Languages**: Python, JavaScript, C, C++, HTML/CSS, Julia, LaTeX, RISC-V
- **Other**: PyTorch, TensorFlow, Git, Docker, WandB

Activities & Interests

- **Varsity Cross Country and Track & Field:** NCAA DIII National Champions, Academic All-Conference
- **Interests**: AI, neuroscience, reading, hiking, aviation, space flight, history