## **Reece Shuttleworth**

## Education

Massachusetts Institute of Technology	Cambridge, MA
Master of Engineering, Computer Science & Cognitive Science	Feb 2024 – May 2025
<ul> <li>Studying the science of Deep Learning.</li> </ul>	
<ul> <li>Massachusetts Institute of Technology</li> </ul>	Cambridge, MA
Bachelor of Science, Computer Science & Cognitive Science	Sep 2021 – Dec 2023
• Coursework: Algorithms I & II, Machine Learning, Deep Learning, T	ГіпуML, Linear Algebra,
<ul> <li>Programming, Probability, Computational Cogsci, AI Ethics, Game 7</li> <li>GPA: 4.9/5.0</li> </ul>	Theory, Hardware for Deep Learning
Experience	
• MIT CSAIL	Cambridge, MA
Language & Intelligence Group Researcher	Feb 2024 – present
• Currently studying finetuning.	
Google DeepMind	New York City, NY
Research Engineering Intern	Jun 2024 – Aug 2024
<ul> <li>Implemented and ran hundreds of experiments across thousands of T</li> </ul>	PUs to measure and improve
Gemini's factuality, especially in multi-modal contexts.	
• Aligned state-of-the-art factuality auto-classifier with human factuali	ty labels.
• Cleanlab	San Francisco, CA
Machine Learning Engineering Intern	Jan 2024 – Mar 2024
<ul> <li>Developed and implemented novel ways to detect data issues in orde</li> <li>Wrote in production code to detect low quality text with high precision</li> </ul>	r improve data quality. on.
• Numenta	Redwood City, CA
Software/Machine Learning Engineering Intern	May 2023 – Aug 2023
<ul> <li>Created novel PEFT fine-tuning methods for LLMs to meet strict cus</li> <li>Wrote code to support efficient sparse neural networks.</li> </ul>	stomer and hardware constraints.
• MIT CSAIL	Cambridge, MA
Undergraduate Researcher	Dec 2021 – May 2023
• Studied LLMs and their use cases. Published separate papers in Neur	<u>IPS FMDM '22</u> and <u>PNAS '22</u> .
Selected Work	
Analyzing Inference Optimizations for Transformers	
• Studied inference optimizations in the attention module of transformed	ers.
• 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)	
<ul> <li>Examined bias in BERT models and used finetuning with a novel los</li> </ul>	s 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 using only NumPy arrays.

## Technical Skills & Interests

- Languages: Python, C, C++, HTML/CSS, JavaScript, Julia, LaTeX, RISC-V
- Tools/Frameworks: PyTorch, JAX, Git, Docker, WandB
- Interests: AI, neuroscience, reading, hiking, aviation, space flight, history