Joshua Siegel

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EDUCATION

Yale University, New Haven, CT — Expected Graduation May 2026
BS in Computer Science, GPA: 3.91
Relevant Coursework: Intensive Linear Algebra, Introduction to Computer Science, Data Structures and Programming Techniques, Artificial Intelligence, Probability Theory, Discrete Math, Introduction to Quantum Computing

Awards: Computer Science Summer Research Grant ($3500 prize), Branford Richter Fellowship ($1000), Strong Family Travel Fellowship for Peace and Development ($1600)

St. John's High School, Houston, TX — Graduation May 2022

WORK EXPERIENCE

Technion, Israel Institute of Technology, *Natural Language Processing Researcher*, Israel — June 2023 - August 2023
- Investigated causality and interpretability in text generation and text-to-image models by conducting experiments on the T5 model's hidden layers to understand their encoding of complex scenes.
- Analyzed experiments with quantitative metrics by implementing CLIP Score, Facebook's Segment Anything Model, and other APIs that aided data analytics.
- Conducted Researched the relationship-forming abilities of the LLM GPT-2, focusing on "is-a" and "part-of" relationships. Concluded that GPT-2 successfully generalizes concrete information in up to 80% of cases.

Octane Lending, *Data Science and Natural Language Processing Intern*, New York, NY — June 2022 - August 2022
- Executed NLP research to enhance credit model accuracy within the Risk/Finance Team.
- Developed automated software that assessed loan eligibility of 95% of applicants based on job title and employer.
- Analyzed the industries and job titles of almost 2 million customers, determining which were most likely to default on loans during economic downturns.

Jane Street Capital, *Quantitative Trading Program Participant,* New York, NY — July 2022
- Engaged in a 3-week hybrid program encompassing trading, software engineering, and business development.
- Collaborated with the quantitative trading team on market simulation games and delved into probability theory applications in quantitative trading.

LEADERSHIP AND CAMPUS EXPERIENCE

Yale School of Medicine, *Machine Learning Researcher*, New Haven, CT — August 2023 - Present
- Designed software to model threat perception and predict behavior of mice, using recurrent and convolutional neural networks to over 300 neurons in the prefrontal cortex and optical nerve.
- Applied machine learning techniques such as nonlinear dimensionality reduction, generalized linear models, clustering, and classification to simplify over 1 million rows of data and come to conclusions about mouse behavior.

Interfaith Fellowship with the Muslim World League, *Participant,* Riyadh, Saudi Arabia — May 2023 - Present
- Engaged in high-level interfaith dialogue with members of the Muslim World League, the Saudi Ambassador to the United States, and Saudi citizens, aiming to foster peace in the Middle East.
- Received competitive grants totaling $2,600 from the Branford Richter Fellowship and the Strong Family Travel Fellowship for Peace and Development to fund the trip and facilitate peace-building initiatives.

Code Haven, *Mentor*, New Haven, CT — January 2023 - Present
- Educated middle school students in programming using Scratch, imparting skills like conditionals and variables.
- Assisted students in developing a game reminiscent of the Crossy Road mobile app.

SKILLS

- *Programming Languages:* Python, C, C++, SQL, Mathematica, Racket, Swift
- *Programming Tools:* PySpark, Keras, Tensorflow, PyTorch, Pandas, HuggingFace
- *Computer Science Skills:* Natural Language Processing, Machine Learning, Data Analytics
- *Language Skills:* Spanish (Full working proficiency), Arabic (Intermediate Proficiency), Hebrew (Beginner Proficiency)