Jonathan Pei

Palo Alto, CA
650-223-9588 jonnypei@berkeley.edu linkedin.com/in/jonnypei jonnypei.github.io/

Education

University of California, Berkeley **May 2025**
B.S. Electrical Engineering and Computer Sciences (EECS); B.A. Statistics ***GPA: 3.9***

Relevant Undergraduate Coursework: Computer Architecture, Discrete Mathematics, Advanced Algorithms, Causal Inference, Computer Security, Machine Learning, Computer Vision and Computational Photography, Network Theory, Signals and Systems, Digital Signal Processing, Probability Theory, Convex Optimization, Quantum Computing

Relevant Graduate Coursework: Deep Reinforcement Learning, Information Theory, Random Processes, Combinatorial Algorithms and Data Structures, Natural Language Processing, Theoretical Statistics * = In Progress

Honors: Eta Kappa Nu (Top 25% of EECS Majors), Dean's Highest Honors List (Top 3% of College)

Work Experience

Google, Software Engineer Intern **Jun 2023 - Aug 2023**
- Worked on the Google Core Tensorflow team to optimize internal ML infra and incorporate new models into internal model pipelines.
- Integrated image preprocessing methods to internal tensorflow model development pipeline, improved production performance of vision & language models.
- Designed and built robust multimodal model finetuning methods for multimodal models.
- Conducted A/B testing experiments on new models from research team, developed a report on findings.

Meta, Software Engineer Intern **May 2022 – Aug 2022**
- Worked on Instagram Ad Ranking & Delivery team to improve internal resource allocation and recommendation system.
- Built data pipelines and conducted risk analysis on core infrastructure metrics to streamline Instagram ad ranking.
- Performed experiments on user engagement features to tune SOTA media concept identification model.

UC Berkeley EECS, Course Staff **Aug 2021 – Present**
- Head uGSI (Teaching Assistant) for CS170 (Advanced Algorithms); previously on course staff for CS61B/CS70.
- Manage a team of 50+ course staff members, lead discussion sections, develop course content, hold office hours, and organize review sessions.

Research

Berkeley AI Research (BAIR), Undergraduate Researcher **Aug 2022 - Dec 2023**
- Worked in Berkeley NLP Group with Kevin Yang and Prof. Dan Klein; exploring control text generation schemes.
- Published "PreAdD: Prefix-Adaptive Decoding for Controlled Text Generation" in *ACL 2023* as first author.

Neurosymbolic AI at UPenn, Undergraduate Researcher **Mar 2023 - Nov 2023**
- Collaborating with Ziyang Li and Neelay Velingker under Prof. Mayur Naik to research ways to integrate symbolic reasoning into deep learning methods.
- Integrating new features into Scallop and exploring neurosymbolic programming for LLM models.

NASA Ames Research Center, Research Intern **Jun 2021 – Sep 2021**
- Integrated visualization software (numpy, matplotlib, seaborn) to analyze the spectral features of raw asteroid data from the IRSA archive and categorize them accordingly, streamlining the data analysis process.
- Designed a deep CNN to detect primitive carbonaceous chondrite meteorites in telescopic images with 93% accuracy.

Summer Science Program (SSP), Student Researcher **Jun 2020 – Jul 2020**
- Performed image processing (calibration, alignment, layering, denoising, etc.) on telescopic image data using the SAOImageDS9, AstroImageJ, and nova.astrometry.net softwares.
- Implemented Gauss's Method to determine the orbital elements of 12 near-Earth asteroids and used PyGame to build orbit visualizations; results were published at the International Astronomical Union (IAU) Minor Planet Center.

Awards

USA Math Olympiad (USAMO) Qualifier; Top 250, AMC 12 Score 129, AIME Score 13
USA Computing Olympiad (USACO) Platinum Division; Top 200
USA Physics Olympiad (USAPhO) National Silver Medalist; Top 100

Technical Skills

Languages: Java, Python, C++, HTML/CSS, R, C#, SQL
Technologies: Tensorflow, PyTorch, Scikit-learn, AWS, Unity3D, NumPy, Pandas, PyGame, Matplotlib
Interests: Machine Learning, Quantitative Analysis, Deep Learning, Computer Vision, Signal Processing, Probability Theory, Statistics, Game Theory