Jeffery Wei

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EDUCATION

University of Maryland, College Park   College Park, MD
B.S. in Computer Science and Applied Mathematics   *Expected Graduation Dec 2026*
- GPA: 3.54/4.0
- Awards: President's Scholarship
- Coursework: Algorithms, Computer Systems, Organization of Programming Languages, Object-Oriented Programming, Machine Learning, Probability Theory, Linear Algebra, Multivariable Calculus

EXPERIENCE

Machine Learning Research Fellow   Jun 2025 – Present
The Tensor Lab for Computational Medicine   *Remote*
- Lead research on prostate cancer gene variants, predicting impacts and revealing risks using Python, scikit-learn, and pandas.
- Integrate Google AlphaGenome, a novel deep-learning model, to predict 1,000+ molecular effects across 3,000+ variants.
- Construct feature engineering pipelines to transform high-dimensional outputs into interpretable Regulatory Impact Scores, capturing key functional outcomes for downstream analysis, achieving 90% dimensionality reduction.
- Cluster variants using k-means and hierarchical clustering, uncovering risk mechanisms and visualizing with Matplotlib.

Software Engineer Intern   Jun 2024 – May 2025
NASA Goddard Space Flight Center   *Greenbelt, MD*
- Analyzed satellite data compression methods (zstd, zlib, gzip, Blosc) to reduce storage, projected to save $150M in costs.
- Validated compressed outputs with scientists, preserving over 99% of key forecast variables to maintain scientific integrity.
- Upgraded a legacy Perl/PHP forecast visualization system to a modern JavaScript-based platform, integrating two new model components and reducing load times by 35%.

Software Engineer   Jan 2025 – Mar 2025
Microsoft Hack4Good   *Bellevue, WA*
- Collaborated on a multi-agent conversational system enabling LLM agents to work together, execute tasks, and transfer conversations across context-aware chatrooms, designed to help people with disabilities explore tailored job opportunities.
- Implemented retrieval-augmented prompts with Semantic Kernel and Pinecone, injecting context for grounded responses.
- Integrated WebSockets into the React frontend to stream real-time agent interactions and synchronize context transfers.

Technical Lead   Feb 2024 – Jan 2025
Hack4Impact-UMD   *College Park, MD*
- Developed a React Native app for a family literacy nonprofit, enabling 80k+ families to track children's reading progress.
- Integrated Firebase Authentication for secure, role-based login and Firestore for real-time storage/retrieval of assignments.
- Led a 6-person engineering team in Agile, guiding technical decisions, system architecture, sprint planning, and code reviews.

Research Assistant   Oct 2021 – Sep 2024
Maryland Information Network Dynamics Lab   *College Park, MD*
- Evaluated ML models (SVM, Random Forest, LSTM) to predict respiratory illness onset from patient breath signal data.
- Engineered preprocessing pipeline to reduce noise in raw respiratory signals by 80%, improving prediction model accuracy.
- Optimized lab website performance with GatsbyJS, cutting load times by 30% through GraphQL-powered static rendering.

PROJECTS

SnapChef | *Python, Flask, JavaScript, OpenCV*
- Developed a full-stack app utilizing computer vision to classify ingredients and suggest recipes from real-time camera input.
- Trained and integrated a YOLOv8 model with OpenCV for robust ingredient detection across 20+ common food items.
- Built a JavaScript frontend for real-time video streaming and a Flask backend to asynchronously handle HTTP requests, image uploads, and serve RESTful API endpoints.

Portfolio Website | *React, JavaScript, SCSS*
- Designed and developed a personal portfolio website in React to showcase projects, skills, and achievements.
- Implemented a responsive SCSS layout with media queries for consistent UX across devices.
- Deployed via Vercel with automated builds for quick and reliable updates.

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, C, Rust, OCaml, Assembly (x86-64), HTML, CSS
Frameworks: React, Next.js, Node.js, Flask, React Native, Firebase
Libraries: PyTorch, scikit-learn, pandas, NumPy, Matplotlib, OpenCV
Developer Tools: Git, JupyterLab, Visual Studio Code, PyCharm, Figma, Eclipse, MATLAB