

JASPREET SINGH

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SKILLS

Programming & Data Engineering: Python (Pandas, NumPy, Scikit-learn, TensorFlow, PyTorch), SQL (BigQuery, MySQL), Dataform, Git/GitHub, Docker, Google Cloud Platform, MATLAB/Simulink

Machine Learning & AI: CNNs (ResNet, U-Net, Attention U-Net), SNNs (Intel Loihi/Lava), ANN, computer vision (OpenCV, scikit-image), RAG, Langchain

EXPERIENCE

Onyx Data Engineering Intern

June 2025 - August 2025

Atrium (On Assignment at GlaxoSmithKline)

- Engineered GCP data pipelines using Python, SQL, BigQuery, and Dataform to monitor and validate 128+ R&D NextGenerationSequencing team pipelines, improving reliability and data reporting compliance to internal leadership.
- Integrated Cloud Monitoring APIs to proactively identify pipeline failure points, boosting root cause resolution time.
- Developed several interactive Power BI dashboards connected to BigQuery models, reducing executive leadership burden by improving the time to insight of several key performance indicators (KPIs) and SLA metrics from 3 days to near real-time.
- Served as rotating Scrum Master, leading SAFe Agile standups on daily developer progress and blocker updates in addition to sprint retrospectives; conducted pipeline failure root cause analysis with NGS developer data engineering team.
- Presented project insights and dashboard to 100+ technical and non-technical individuals at GSK.

Graduate Student Researcher IV

October 2024 - July 2025

Rehab Neural Engineering Laboratory (PI: Dr. Brian Dekleva, PhD)

- Designed Simulink/Stateflow experiments for the KINARM exoskeleton to study pre-shout routine in humans via collision detection and reach-to-target behaviors under sensorimotor perturbation.
- Independently created task logic that dynamically adjusted goals, targets, and barrier interactions based on participant hand velocity, direction, and hit precision.
- Authored and deployed Standard Operating Procedure (SOP) for KINARM setup, debugging, and trial design — reducing lab onboarding time by several days.
- Collaborated with clinical coordinators and PI to assist with updates to IRB documentation, study protocols updates, and generate recruitment materials for human participants.

HIGHLIGHTED PROJECTS

Medical Image Segmentation of Hippocampus Tissue via CNNs

September 2024 - December 2024

- Designed, trained, and optimized convolutional neural networks (CNNs) including ResNet-18 and Attention U-Net thus advancing research and clinical applications for medical image segmentation.
- CNN Performance was evaluated with metrics such as mIoU and HD95, effectively isolating hippocampal structures from extraneous tissue.

Spiking Neural Networks for Keyword Spotting

January 2024 - May 2024

- Developed and trained a Spiking Neural Network (SNN) for a novel application of keyword spotting on Intel's Loihi platform, leveraging a bio-inspired Leaky Integrate-and-Fire neuron algorithm to mimic biological neural behavior.
- Trained a SNN model to achieve 84% accuracy therefore advancing computationally efficient keyword spotting.

Jeep Wrangler Sales Forecasting (Regression Modeling)

April 2024

- Collected and preprocessed automotive sales data, engineered features (seasonality, economic indicators), and applied logistic/ridge regression models in Python to forecast Jeep Wrangler sales.
- Improved prediction accuracy over baseline benchmarks and visualized results in Matplotlib/Seaborn.

LEADERSHIP

Master Student Liaison for Biomedical Engineering Society (BMES)

September 2023 - May 2024

- Organized networking events for graduate students and represented the University at the national BMES conference.

Changemaker Scholar awarded from the Big Idea Center at the University of Pittsburgh

December 2024

- Recognized for demonstration of an entrepreneurial mindset & cultivating a skillset of hands-on exploration & innovation.

EDUCATION

University of Pittsburgh, Pittsburgh, PA

Master of Science in Bioengineering (Cumulative GPA: 3.84)

December 2024

Neural Engineering Track with concentrations in Brain-Computer Interfaces & Medical Devices

Bachelor of Science in Neuroscience, Cum Laude Honors

April 2022

Minors in Chemistry & Theatre with a Certificate in Conceptual Foundations of Medicine

Undergraduate thesis: "Childhood Adversity and Perceived Social Standing: Negative Associations of Trauma and Absence of Effects of Perceived Childhood Socioeconomic Status on Resting-State Functional Connectivity within a Central Visceral Circuit"