

Yug Patel

224-830-5776 | yugbpatel30@gmail.com | [linkedin.com/in/patel-yug](https://www.linkedin.com/in/patel-yug) | github.com/pateyu | US Citizen

EDUCATION

Missouri University of Science and Technology

Rolla, MO

Bachelor of Science in Computer Science; Minor in Mathematics and Statistics; GPA: 3.78 Aug. 2022 – Dec. 2025

EXPERIENCE

Computer Vision/Data Science Co-op

May. 2025 – Present

Hunter Engineering Company

Remote

- Led technical enhancements of Hunter's Automatic Number Plate Recognition (ANPR) system, a core component of its vehicle servicing products, to handle thousands of diverse and evolving plate designs.
- Created a two-stage recognition model that boosted system accuracy by 10%; this involved fine-tuning the primary YOLOv9 detector and adding a Vision Transformer (ViT) to handle character recognition on novel plate types.
- Developed a data pipeline with active learning and pseudo-labeling to automatically identify high-impact training data, cutting manual annotation needs by 75% across a 150,000+ image library.
- Improved the manual annotation process by building a set of custom web applications for data labeling and review, which increased annotation throughput by nearly 3x.

Machine Learning Programmer (Student Contractor)

Jan. 2025 – Present

U.S. Geological Survey (USGS)

Rolla, MO

- Developed automated ML workflows for large-scale geospatial analysis, reducing the processing time for the USGS's national map updates from weeks to hours.
- Slashed compute time on terabyte-scale datasets by 60% by designing CUDA-accelerated parallel processing workflows for an HPC environment, using Slurm to orchestrate jobs across hundreds of GPU-enabled nodes.
- Engineered a feature extraction pipeline (e.g., calculating zonal statistics, geometric attributes) to process and harmonize terabytes of diverse hydrographic data, creating analysis-ready datasets using GeoPandas and Rasterio.
- Applied machine learning models to the extracted features for critical hydrographic analysis, including performing unsupervised clustering (K-Means, DBSCAN) for density assessments and classifying water body characteristics (e.g., Random Forest, GBDT).

CS Research Intern

May. 2024 – Aug. 2024

National Science Foundation

Rolla, MO

- Designed and constructed a multi-modal data acquisition platform for cognitive load analysis, achieving sub-millisecond synchronization of high-frequency EEG and PPG sensor streams via Lab Streaming Layer (LSL).
- Developed a low-latency, real-time data processing pipeline in Python, applying digital band-pass filters to reduce signal noise by 40% and extract high-fidelity features for model ingestion.
- Enabled on-device cognitive workload classification by implementing a power-efficient Convolutional Spiking Neural Network (CSNN) in snnTorch, leveraging the real-time feature extraction pipeline.

Undergraduate Research Assistant

Jan. 2024 – May. 2024

Dept. of Computer Science, Missouri S&T

Rolla, MO

- Developed a data pipeline to process over 100,000 tweets, which involved parsing JSON, cleaning text (e.g., expanding contractions, removing social media artifacts), and structuring data for model ingestion.
- Increased the F1-score on minority classes by 40% by mitigating severe class imbalance in the training data using synthetic oversampling techniques (SMOTE).
- Fine-tuned BERTweet, a RoBERTa-based model pretrained on Twitter data, achieving 98% classification accuracy and significantly outperforming traditional baseline models.
- Developed a web application using Python and FastAPI, enabling stakeholders to perform real-time inference with an ONNX-formatted model running directly in the browser using ONNX.js.

TECHNICAL SKILLS

Languages: Python, Java, C/C++, SQL, JavaScript, R, MATLAB, HTML/CSS

ML/Data Science: PyTorch, TensorFlow, Scikit-Learn, Pandas, OpenCV, Rasterio, GeoPandas, snnTorch

Frameworks & DBs: React.js, Node.js, Django, FastAPI, Spring Boot, PostgreSQL, MS SQL Server, PostGIS, NoSQL

Tools & Cloud: Git, Docker, CI/CD, Linux, CUDA, AWS (EC2, S3, Lambda), Azure, Excel