Jay Patel

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Education

University of Connecticut — **Storrs, CT**
B.S. Computer Science (Concentration: Computational Data Analytics); — *Graduating May 2026*
B.A. Applied Mathematics, Minor in Business — ***Honors Program*** *– 3.7 GPA*

Experience

UConn Phylogenetics Lab | *Python, PyTorch, Scikit-learn, Biopython* — August 2025 – Present
ML Undergraduate Researcher (PI: Prof. Mukul Bansal) — *Storrs, CT*
- Developing supervised learning models to classify gene tree/species tree discordance.
- Engineering biologically meaningful features from phylogenetic trees to improve detection of horizontal gene trans.
- Integrating ML predictions into reconciliation pipelines to enhance scalability and of evolutionary inferences.

UConn Tutoring Center | *Data Structures, Algorithms, C++, C, Python* — August 2025 – Present
Peer Tutor — *Storrs, CT*

Amneal Pharmaceuticals | *Python, Splunk, Nessus, SIEM* — June 2025 – August 2025
Cybersecurity Intern — *Bridgewater, NJ*
- Conducted vulnerability scans and compliance audits across 12 systems using Nessus, reducing exposure by 24%.
- Automated log analysis in a collaborative team using Python and Splunk, cutting detection time by 40%.

Commotion | *Python, Transformers, HuggingFace, Scikit-learn* — April 2025 – June 2025
AI/ML Intern — *Remote*
- Designed sentiment & intent classification pipeline on customer data using DistilBERT and custom preprocessing.
- Benchmarked traditional ML (TF-IDF + Logistic Regression) against Transformer models, achieving 21% improvement on nuanced language detection.
- Engineered uplift modeling (S-, T-, X-Learner) to identify optimal messages for AI-generated intervention.

UConn eCTF Team | *C, WolfSSL, Embedded Systems* — August 2024 – May 2025
Secure Embedded Systems Engineer — *Storrs, CT*
- Engineered AES-secured flash storage on MAX78000 MCU as part of a 4-member team in MITRE's embedded Capture The Flag (eCTF) competition.
- Enhanced encryption performance by 35% using WolfSSL and hardware acceleration.

Yale University | *Python, NLP, ServiceNow, CI/CD* — June 2024 – August 2024
Information Technology Intern — *New Haven, CT*
- Developed an AI chatbot using Python & NLP techniques to automate support, reducing resolution time by 22%.
- Collaborated with IT teams on ticket classification algorithms, improving triage efficiency by 30%.

Projects

Climate Stance Detection | *Python, Scikit-learn, Transformers, PyTorch* — Aug. 2024 – Dec. 2024
- Led development of a stance classification pipeline on 3K+ Reddit posts, achieving 85% accuracy.
- Engineered features using TF-IDF, Word2Vec, and statistical validation.
- Deployed model with CI/CD pipelines, increasing reproducibility.

Airline Reservation System | *C++* — Mar. 2024 – May 2024
- Designed a route optimizer using DFS and STL containers to generate efficient flight itineraries.
- Collaboratively built a CLI interface and visualizer, reducing planning time by 30%.

Epidemic Simulation | *C* — Sep. 2023 – Oct. 2023
- Built a real-time SIR-based disease simulator for 100,000+ agents using custom hash functions and linked lists.
- Reduced lookup times by 70%, enabling simulations of 1M+ time steps with visual tracking.

Technical Skills

Languages: Python, Java, C, C++, JavaScript, SQL
Frameworks/Tools: Scikit-learn, PyTorch, NumPy, Pandas, Docker, AWS, Node.js, React, Git, TensorBoard, Jupyter, Hugging Face, Splunk, SpaCy, ServiceNow, Crowdstrike, Proofpoint, Tableau, PowerBI, Agile
Concepts: Machine Learning, NLP, Cloud Computing, Cybersecurity, Data Structures, OOP, Algorithms, Secure Embedded Systems, CI/CD