Yav Rohatgi

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EDUCATION

University of Massachusetts Amherst *Sept 2021 - May 2025*

- Bachelor of Science in Computer Engineering with departmental honors & mathematics minor, GPA: 3.82
- **Honors**: Chancellor's Award (Merit Scholarship, $48000) and Dean's list (every semester)
- **Coursework:** Machine learning, Secure Distributed Systems, Operating Systems, Artificial Intelligence, Computer Networks, Embedded Systems, Scientific Computing, Security Engineering, Hardware Organization and Digital Design & Data Structures and Algorithms

EXPERIENCE

DevOps Engineer Intern - Sonet.io | Powershell, Bash & Kubernetes *May 2024 – Aug 2024*

- Engineered 5+ PowerShell scripts to automate application installation and configuration for 50+ remote machines
- Reduced manual setup time by 20%, improving efficiency and productivity by eliminating repetitive configuration tasks
- Implemented logout scripts to remove guest-created data, ensuring a clean system state and optimizing storage usage by 10%
- Built Kubernetes log-monitoring scripts to track 10+ applications across 3+ clusters, improving log retrieval speed by 30%

Software Engineer Intern - Samsung Data Systems | NLP, Python & SQL *May 2023 – Aug 2023*

- Managed a database of 50,000+ reviews from e-commerce sites, generating 100+ keywords to analyze smartphone trends
- Enhanced Vader and SQL-based libraries to identify product features influencing profit and loss in market share for 100+ phones
- Created a sentiment analysis program in Python, improving review classification accuracy by 25% and enabling product insights
- Generated visual representations of the data, helping stakeholders identify key consumer trends and improve product strategy

Undergraduate Teaching Assistant - College of Engineering at UMass Amherst | MATLAB & Excel *Sept 2023 – Dec 2024*

- Guided 150+ students in developing efficient and user-friendly scripts while improving performance and robustness
- Collaborated with the instructor and held weekly office hours to ensure seamless class operations and student support

Organized HackUMass 2023 & HackHer 2024 - UMASS Amherst | Leadership & Event Management *Sept 2023 – May 2024*

- Coordinated logistics, sponsors, and 500+ participants to ensure the smooth execution of both hackathons
- Resolved technical and hardware issues for participants, enabling efficient product development during the events

PROJECTS

Sign Detection Gloves | Machine Learning, Python, C++, TensorFlow, IMU's & BeagleBone Black (MCU)

- Capture high-frequency motion data by tracking 6-axis IMU readings on each finger, enabling precise gesture recognition
- Process and stored sensor data as a discrete-time signal, timestamped via MCU clock, to detect sequential hand signs
- Train a lightweight machine learning model with TensorFlow Lite, achieving 92% accuracy in real-time gesture classification

AI Assisted Approach to Math Tutoring with Professor Lixin Gao | LangChain, Prompt Engineering & Huggingface

- Conduct research to improve math-solving abilities of LLMs like ChatGPT using one-shot, symbolic, and chain-of-thought reasoning
- Execute training experiments on small LMs from Hugging Face, boosting BLEU score by 11.6% and enhancing mathematical reasoning
- Develop an improved MATH dataset to support tutors, refining problem categorization and response accuracy

Tiny Large Language Model | Machine Learning & Jax

- Designed sequence prediction models (constant, linear, MLP, double-layer networks) using JAX, improving efficiency by 30%
- Fine-tuned architectures with SGD, reducing loss by 66% (from 4.27 to 1.44 in double MLP), enhancing text generation clarity

Thread Library & Disk Scheduler | Operating Systems, C++ & Multi-Threading

- Developed a thread library for multiple threads with ucontext, FIFO scheduling, Mesa-style condition variables, and simulated interrupts
- Built a disk scheduler using SSTF, synchronizing multiple threads with monitors while managing a bounded queue of 1000 requests

Token Manager and Holder Contracts | Solidity & Ethereum Smart Contracts

- Architected ERC223-compliant contracts to mint, melt, and transfer 100K+ tokens, ensuring secure token management
- Established token sales and remittance processes, facilitating 1,000+ secure on-chain transactions with zero security breaches

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, SQL, React, PowerShell, LangChain, Bash, Solidity, R, MATLAB, Assembly, Verilog & VHDL

Frameworks and Libraries: TensorFlow, PyTorch, JAX, Scikit-Learn, Hugging Face Transformer, TensorFlow Lite & React

Tools: Docker, Git & GitHub, Amazon Web Services (AWS), Microsoft Azure, Circuit Lab, Quartus Prime, Ripes, Unity,

Hardware: Arduino Uno, ATmega328P, BeagleBone Black, DE1-SoC, ESP32, FPGAs, HoloLens 2, Raspberry Pi Pico 2

Certification: Microsoft Certified Azure Fundamentals (AZ-900)