

# VIKHYAT CHAUHAN

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## EDUCATION

- **Virginia Polytechnic Institute and State University** Blacksburg, VA  
*Master of Science in Computer Engineering with Thesis; GPA: 4.00* Aug. 2024 – Present
- **College of Engineering Roorkee, Uttarakhand Technical University** Uttarakhand, India  
*Bachelor of Engineering in Electrical and Electronics; Percentage: 77% (First Division)* July. 2016 – Dec. 2020

## EXPERIENCE

- **Graduate Research Assistant** Virginia Tech, VA  
*Brain-inspired Computer Architecture - National Science Foundation Grant* Nov 2024 - Present
  - Designed HYDRA, a brain-inspired reinforcement learning framework for UAVs with constraint-driven arbitration (time/energy/space), integrating hybrid controllers. Built using PyTorch + Gym for training, Gazebo-ROS-PX4 for UAV simulation, and PID baselines for stability assessment.
  - Implemented SAC with reward shaping and continuous control, leveraging GPU-accelerated training pipelines and simulation-to-real transfer workflows to enable robust, RL UAV decision-making under constrained environments.
- **GE Healthcare** Bangalore, IN  
*Software Engineer* Mar 2022 - June 2024
  - Advanced ultrasound segmentation using SonoSAMTrack / SonoSAMLite, integrating transformer-based vision models (ViT, Swin), optimized with TensorRT for real-time clinical inference, improving throughput by 20%.
  - Redesigned MRI deployment by migrating legacy C++ monolithic application to Kubernetes microservices, integrating MRPasting algorithm, and delivering optimized models on GE Edison with Docker and CI/CD (Jenkins, Git, SonarCloud) into PACS/RIS, reducing deployment time by 80% and enabling scalable rollouts.
- **TNM Electronics** Delhi NCR, IN  
*Co-Founder & Chief Technology Officer* Sep 2021 - Mar 2022
  - Architected a microservices-based IoT platform on AWS EC2, scaling to 100+ devices & 1K+ daily events with RabbitMQ, MongoDB, and a custom MQTT broker on in-house patented hardware (achieved 99.9% uptime).
  - Enabled predictive automation by embedding a Kafka pipeline in RabbitMQ to run federated learning models on PyTorch, delivering real-time user behavior analysis and privacy-preserving personalization.

## PROJECTS

- **GPT-Powered Resume Builder** : An automated pipeline using GPT models, Python, and LaTeX to generate tailored resumes for jobs, reducing manual editing time by 80%, producing professional PDFs in under 30s per role, and tracking 50+ applications with structured logging in CSV/Excel.
- **SentinelML**: Developed a single-node ML inference service with FastAPI and ONNX Runtime, containerized via Docker Compose, and integrated Prometheus/Grafana monitoring plus a Python-based auto-healer for canary rollouts; achieved p99 less than 250 ms at 100 RPS and automatic rollback under fault injection, validated with k6 load tests.
- **Patent: 202111060973 - Intellectual Property India**: System and method for facilitating communication between slave and master microcontroller for home automation.

## TECHNICAL SKILLS

**Languages:** Python, C++, Java, SQL, Bash, JavaScript

**Frameworks:** PyTorch, TensorFlow, FastAPI, Flask, React, Node.js, Kubernetes, ROS/Gazebo-PX4

**Developer Tools:** Git, Docker, Jenkins, SonarCloud, Prometheus, Grafana, k6, Google Cloud Platform, AWS EC2/S3

**Libraries:** NumPy, pandas, Scikit-learn, Hugging Face Transformers, ONNX Runtime, TensorRT, SHAP, Grad-CAM

## CERTIFICATIONS

**Neural Networks and Deep Learning:** DeepLearning.AI, 98.46%

**Advanced Machine Learning:** Graduate Course, Virginia Tech, 4.0 GPA

**Brain Inspired Computer Architecture:** Graduate Course, Virginia Tech, 4.0 GPA

**Advanced Natural Language Processing(CS685 S24):** UMass Amherst, 4.0 GPA