## Nithin Jambula

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#### SUMMARY

An enthusiastic and driven machine learning practitioner with hands-on experience in building end-to-end AI systems across domains such as autonomous vehicles, assistive technologies, and deepfake detection. Passionate about neural networks, deep learning algorithms, and transformer-based architectures, with a strong focus on applying these techniques to real-world problems. Proven ability to design scalable ML pipelines, optimize models for deployment on low-power devices, and integrate LLMs in intelligent applications, backed by a solid foundation in research and innovation.

#### EDUCATION

Degree/Certificate	${\bf Institute/Board}$	CGPA	Year
B.Tech., CSE	Vellore Institute of Technology, Andhra	8	2023-27
	Pradesh		
Senior Secondary	Narayana Junior College	95%	2021-23
Secondary	Vivekananda	99.3	2021

## EXPERIENCE

Researcher

• Air VitAP

Jun 2024 – Present

Amaravathi, India

- Designed and deployed an automated voice calling system using ViciDial and Asterisk to promote products across diverse customer segments.
- Conducted applied research on voice automation, outreach optimization, and real-time customer interaction analysis, blending academic insight with practical deployment.

• Sripto [6]

Machine Learning Engineer

Dec 2023 - May 2024

Amaravathi, India

- Developed a robust Retrieval-Augmented Generation (RAG) system to deliver contextual and real-time answers from private documents.
- Built AI-driven tools like PDF chatbots, product search matchers, and NL-to-SQL query engines to improve user accessibility and automation.
- Oversaw deployment, scaling, and integration of backend ML models and frontend interfaces, ensuring end-to-end production readiness.

#### **PROJECTS**

• Vulcan: Self-Driving EV Platform (VIT-AP Research Initiative)

Jan 2023 - Present

- CARLA PyTorch DeepLabV3 SAC DAgger Path Planning
- Designed an end-to-end autonomous driving pipeline using CARLA simulator and Soft Actor-Critic (SAC) reinforcement learning.
- Integrated semantic segmentation with DeepLabV3 for scene understanding; implemented low-computation path planning models.
- Applied DAgger to fine-tune models in dynamic environments, achieving smoother lane alignment and better obstacle avoidance.
- $\circ$  Deployed optimized model for real-time performance on resource-constrained systems with minimal latency.

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Dec 2024 - Present

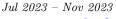
 $YOLOv8 \bullet Roboflow \bullet Raspberry Pi \bullet GCP \bullet OpenCV \bullet TTS$ 



- $\circ$  Developed wearable vision-based system for real-time object detection and navigation feedback via Bluetooth earbuds.
- Fine-tuned YOLOv8 with a custom dataset (50+ object classes), enabling 45+ FPS detection with positional awareness.
- Integrated spatial direction and distance estimation using monocular vision and depth inference algorithms.
- Included contextual alerting system with dynamic updates and location-aware voice output for enhanced mobility.

## WOAT: An intelligent auto-reply bot

 $Gemini\ API \bullet Gcloud \bullet Adversarial\ Testing \bullet Python$ 





- Built WOAT (WhatsApp Auto-Responder), an AI-powered application that learns user communication styles and auto-generates contextual replies using Google Gemini API.
- Engineered smart WhatsApp integration with Python + Node.js, including features like contact-based response filters, session persistence, QR-based login, and fallback simple reply mode.
- Implemented modules for communication tone learning, relationship-based message prioritization.

## • DeepShield: Face-Swap Deepfake Detection Model

Jul 2023 - Nov 2023

 $CNN \bullet GAN \bullet OpenCV \bullet Adversarial Testing \bullet Python$ 

[ ] - Research Paper Submitted

- Engineered a CNN-based deepfake detection model, achieving 22% increase in classification accuracy.
- Created a synthetic video generation tool for data augmentation, expanding dataset variability by 40%.
- Validated performance using precision-recall and ROC-AUC metrics; reduced false positives by 18%.
- Conducted adversarial stress tests to evaluate detection robustness under manipulated inputs.

## • NeuroSecAPI: API Vulnerability Detection Framework

Feb 2024 - Apr 2024

Neurosymbolic AI • NLP • OWASP • Flask • Python

- (7) • Built a neurosymbolic reasoning engine for detecting API-level vulnerabilities based on request pattern
- semantics. • Increased vulnerability detection accuracy by 34%, improving security posture for data transmissions over
- ScreenAutomate: Gesture + Voice Controlled Display System

Oct 2023 - Jan 2024

 $Python \bullet OpenCV \bullet MediaPipe \bullet SpeechRecognition \bullet Bluetooth$ 



- Developed a hybrid control system enabling users to manage screens using voice and hand gestures within Bluetooth range.
- Designed for accessibility and remote desktop interfacing; supports hands-free interaction and smart automation.

## SKILLS

APIs.

- Programming Languages: Python, SQL, C++, Java
- Technologies: TensorFlow, PyTorch, OpenCV, YOLOv8, Hugging Face, LangChain, LLaMA, Scikit-Learn
- Tools: MLflow, Roboflow, CVAT, ONNX, Weights & Biases

#### CERTIFICATIONS

- Machine Learning Stanford University, Deep Learning AI Certification
- Deep Learning Fundamentals IBM Certification
- Machine Learning with Python IBM Certification
- OVO Object Detection Bootcamp Google Certification
- Machine Learning Specialist-Advanced -IBMBadge

#### ACHIEVEMENTS

- Awardee in Vikas 2024 Innovation Challenge for 'EchoSight' a wearable assistive technology solution.
- Winner of Engineering clincs 2024 for novel threat detection framework.

### Positions of Responsibility

• President, ACS International Student Chapter, VIT-AP

Aug 2023 - Present

Marketing Member, SEDS, VIT-AP

Jan 2023 – Present