

# Sarthak Gupta

813-501-9744 | [sarthakgupta1703@gmail.com](mailto:sarthakgupta1703@gmail.com) | [linkedin.com/in/sarthak-gupta17](https://www.linkedin.com/in/sarthak-gupta17) | [github.com/sgupta1703](https://github.com/sgupta1703)

## EDUCATION

### University of Florida

*Bachelor of Science in Computer Science, Minor in Accounting*

Gainesville, FL

*Aug. 2024 – Dec 2027*

## RELEVANT COURSEWORK

Introduction to Software Engineering  
Introduction to Information Systems  
Introduction to Computer Organization  
Multivariable Calculus  
Principles of Macroeconomics  
Financial Accounting

Introduction to Virtual Reality  
Data Structures and Algorithms  
Computational Linear Algebra  
Discrete Structures  
Principles of Microeconomics

## EXPERIENCE

### Robotics Software Developer

January 2025 – Present

*Machine Intelligence Lab @ University of Florida*

- Integrated the Water-Linked Doppler Velocity Log (DVL) into the SubjuGator 9 autonomous maritime system using ROS2, Bash, Linux, Python, and C++, enabling enhanced navigation and localization capabilities.
- Resolved symbolic link installation issues in colcon build by addressing path resolution and build dependencies to ensure an error-free compilation environment.
- Advanced to the **semifinals of RoboSub 2025** with SubjuGator 9, competing against international teams in autonomous underwater robotics.

### Human-Computer Interaction (HCI) Research Intern

May 2025 – Present

*Virtual Experience Research Group (VERG) Lab @ University of Florida*

- Designing an interactive virtual human training system for the U.S. Air Force focusing on sexual assault prevention workflows.
- Leveraging AWS Polly for speech synthesis and Synthesia for avatar-driven video modules to deliver scalable training content.
- Prototyping conversational UI and user flows in Figma to align with human-centered design principles.

### Geospatial AI Intern

May 2025 – August 2025

*Ecosystem Services AI Lab @ University of Florida*

- Created image annotations and spatial labels using QGIS and ArcGIS Pro to support supervised model training and validation.
- Developed Python ETL scripts to acquire, clean, and process spatial datasets (Google Street View, OpenStreetMap, Flickr, U.S. Census, Google Earth Engine).
- Produced GIS visualizations and outreach assets using Matplotlib, ggplot2, and ArcGIS tools.

## PROJECTS

### J.A.R.V.I.S | Python, PyQt6, Vosk, Porcupine, Google Gemini API, OpenGL

June 2025 – Present

- Engineered a multithreaded Python voice assistant using pyporcupine for low-latency wake-word detection and Vosk + sounddevice for offline real-time speech-to-text over raw audio streams.
- Integrated Google's Gemini API via REST for contextual NLP interactions and WeatherAPI with IP-based geolocation; optimized TTS using pyttsx3 with voice customization.
- Developed a multithreaded PyQt6 interface featuring a real-time OpenGL-based waveform visualizer and animated UI elements for conversational feedback.
- Implemented extensible voice-command handlers supporting file system operations and common system controls (lock, screenshot, app launch).

### ExpressCart | React.js, Node.js, Express.js, MongoDB, JWT

May 2025 – July 2025

- Developed a full-stack e-commerce application with a React.js frontend consuming a RESTful Express.js API.
- Built modular, async middleware-based routing in Express.js for scalable backend architecture.

- Implemented MongoDB-backed CRUD endpoints for product, user, and order management.
- Integrated JWT-based authentication and role-based authorization to secure both frontend and backend routes.

**Yoogle** | *React.js, Tailwind CSS, Python, FastAPI*

Mar 2025 – Apr 2025

- Implemented an autocomplete benchmarking system to evaluate latency differences between Trie and HashMap lookups on large-scale query datasets.
- Preprocessed AOL query logs via a custom Python script using regex-based URL stripping and profanity/NSFW filtering prior to indexing.
- Designed and deployed a Python FastAPI backend with asynchronous endpoints for high-throughput suggestion retrieval.
- Integrated a React.js + Tailwind CSS frontend to trigger real-time autocomplete requests and visualize performance metrics.

## TECHNICAL SKILLS

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**Languages:** Java, Python, JavaScript, C++, MATLAB

**Frameworks & Platforms:** React.js, Node.js, Express.js, ROS2, GIS

**Tools & Technologies:** OpenCV, AWS Polly, Figma, Ubuntu, Linux

**Developer Tools:** Git, VS Code, PyCharm, IntelliJ, Eclipse

## CERTIFICATIONS

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**Building Transformer-Based Natural Language Processing Applications** | *NVIDIA*

Jul 2025

- Completed hands-on projects on fine-tuning Transformer-based LLMs and developing NLP pipelines using PyTorch.
- Credential ID: pF329a7-SwSyOeTLS-WONQ

**Fundamentals of Deep Learning** | *NVIDIA*

Jul 2025

- Gained practical understanding of deep learning workflows, covering neural networks, CNNs, and transfer learning using PyTorch.
- Credential ID: OeT9FHBJR-CqIfoSys60yw

**Intermediate Web Development Course (WEB102)** | *CodePath*

May 2025

- Completed intermediate-level training in web development, focusing on modern front-end frameworks, backend integration, and responsive design principles.
- Credential ID: 293245