Neha Karne

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EDUCATION

The University of Texas at Austin Austin, TX

Bachelor of Science in Electrical and Computer Engineering *May 2026*

- GPA: 3.67/4.00
- Coursework: Algorithms, Operating Systems, Data Science, Software Design, Embedded Systems
- Organizations: Texas Guadaloop, UT for Me Dell Scholars, ATX KDC (Dance Organization)

PROJECTS

Yet Another Shell (yash) *February 2025*

- Developed a custom shell program in C, implementing file redirection, piping, signal handling, and job control
- Ensured compatibility with standard Unix/Linux shells by adhering to a predefined set of behaviors from bash
- Optimized user interface for seamless interaction and ensured effective handling of shell commands

Online Library Management System *April 2024*

- Executed a Java-based server-client architecture for an online library management system
- Designed a JavaFX GUI for clients enabling secure login, catalog browsing, and item management functionalities
- Incorporated numerous advanced features including filtering, image support, cryptography, and user reviews
- Established MongoDB for backend data storage, ensuring scalability and data persistence across server sessions

Embedded Jetpack Joyride Game Replica *April 2023*

- Collaborated with a partner to design and solder a custom PCB for a microcontroller-based game system
- Programmed TM4C microcontroller in C++ to control game logic, real-time user input, and display output on LCD
- Implemented hardware interrupts and ADC interfacing to handle input from buttons and slide-pot, respectively
- Integrated advanced features like transparency, background music, layered graphics, and multilingual support

EXPERIENCE

Machine Learning Intern *June 2024 – August 2024*

Applied Research Laboratories

- Spearheaded the research and development of machine learning-based algorithms using SimCLR and UMAP to analyze sonar imagery and identify acoustic anomalies in environmental data
- Developed algorithms in Python, leveraging libraries such as Pandas, PyTorch, and Bokeh, to process nearly 12 million data points collected by an active sonar system
- Enhanced machine learning model accuracy through systematic exploration and integration of diverse distance metrics, outlier detection algorithms, and dimensionality reduction techniques
- Conducted data labeling of almost 100,000 data points to establish ground truth for self-supervised algorithms

Data Analytics Team Member *September 2023 – Present*

Texas Guadaloop

- Contributed to the ground-up creation of the organization's website using HTML, JavaScript, and CSS
- Utilized Python for data visualization projects, leveraging libraries such as Matplotlib and NumPy

Undergraduate Teaching Assistant *January 2024 – Present*

The University of Texas at Austin

- Facilitated Introduction to Computing (ECE 306) for 80+ students by leading weekly recitations, holding bi-weekly office hours, and assisting with proctoring and grading

TECHNICAL SKILLS

- **Languages:** Java, Python, C/C++, JavaScript, HTML/CSS, ARM Assembly
- **Frameworks & Libraries:** JUnit, pandas, NumPy, Matplotlib, Bokeh, PyTorch
- **Tools & Environments:** Git, Linux, AWS, MongoDB, VS Code, Jupyter Notebook, Google Colab