Akshita Santra

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EDUCATION

The University of Texas at Austin, Austin, TX — May 2028
Bachelor of Science in Computer Science, Minor in Business, Minor in Robotics — GPA: 3.83

- **Relevant Coursework:** Operating Systems, Linear Algebra, Computer Architecture, Data Structures

SKILLS

Languages: Java, C#, C++, Python, C, ASM, JavaScript, HTML/CSS, MATLAB, TypeScript, R
Technical Skills: Arduino, Multithreading, Bluetooth (BLE), Modbus Comms, Unity, Git, Scrum, TensorFlow
Certifications: Oracle Certified Associate - Java SE 8 Programmer *(Issued May 2024)*

EXPERIENCE

Aramco Americas, *Robotics & Autonomous Systems Intern,* Houston, TX — May 2025 - August 2025

- Programmed two robots that collect oil well data to enhance field safety and support more sustainable resource extraction, by developing modular **C++** firmware for 20+ hardware components.
- Developed **Python**-based GUIs for both robots with BLE connectivity and multithreaded state workflows, leveraging **NumPy/Pandas** for data processing and **matplotlib** dashboards for sensor visualization.
- Enabled reliable **MATLAB** ↔ **Arduino** data exchange via Modbus Comms with zero packet loss.

NanoAssembly Lab, *Research Assistant,* Austin, TX — December 2024 - Present

- Systematized a deep learning framework for small-angle X-ray scattering (SAXS) analysis, reducing error rates by ~73%, helping to facilitate the design of more efficient drug-delivery nanoparticles.
- Developed and trained a 1D-CPNN deep learning model on 24,000+ simulated SAXS profiles in **Python**, achieving an R^2=0.987 and improving prediction accuracy by ~79% over manual analysis methods.
- Created a GUI and bundled executable with **Python**, enabling researchers to run micelle structure predictions 10^3-10^6× faster without coding expertise or specialized hardware.

Microsoft, *Blacks at Microsoft Apprenticeship Program,* Houston, TX — July 2023 - August 2023

- Gained proficiency in **Python** and taught classes to 20+ apprentices, strengthening team programming skills.
- Engineered a multithreaded **Python** server-client chat app; won 1st place in the Microsoft Python Competition.
- Led a 1st-place hackathon team to build smart glasses that record visual experiences to aid dementia patients.

PROJECTS

- **SimuCare** - Addressed financial accessibility gaps in NREMT prep by developing a free, judgement-based **Python** training tool with a modular intervention tree and JSON-driven scenario engine.
- **Dynamic Memory Allocator** - Designed and implemented a custom malloc()/free() in **C** with binned free lists, block splitting, coalescing, and a heap consistency checker, ranking 14th/500+ on the course performance leaderboard, measured by utilization and throughput

LEADERSHIP & ACTIVITIES

Student Engineers Educating Kids, *Program Officer,* Austin, TX — January 2025 - Present

- Lead and run weekly STEM mentoring sessions for 25+ elementary students, ensuring an engaging learning environment.
- Serve as the primary point of contact for 15+ mentors, providing guidance, and resolving on-site issues.
- Collaborate with elementary school staff and SEEK mentors to coordinate logistics and share updates.

FIRST Robotics Team, *Team Captain/Programming Lead,* Tomball, TX — August 2020 - May 2024

- Coded all functionality for the 2023 and 2024 robot in **Java**; consistent 22+ pts scored in autonomous period.
- Led the team in overcoming the crisis of losing 501c3 status and secured new sponsors.
- Raised $2,500 to supplement limited budget and sourced materials by cold calling metal and polycarbonate suppliers. Secured enough parts to construct a robot that successfully competed at the World Championships.