Aadarsh Narayan

832-998-7324 | aadarsh271.k.narayan@utexas.edu
Austin, TX 78712

EDUCATION

The University of Texas at Austin, Austin, TX June 2025
Bachelor of Science, Computer Science, **Turing Scholars Honors** Program
Bachelor of Science, Mathematics

Course Work
Multivariable Calculus, Discrete Mathematics, Probability and Statistics, Linear Algebra (Matrices), Differential Equations, Mathematical Statistics

Data Structures Honors, Computer Architecture Honors, Operating Systems Honors, Algorithms Honors, Computer Graphics Honors, Principles of Machine Learning I, Principles of Machine Learning II, Autonomous Driving Honors, Quantum Information Science Honors

Overall GPA: 3.98/ 4.0

SKILLS

Programming Languages: C++ (including experience with standard library and working in large teams), C, Python (including experience with pytorch, scikit, pandas, and numpy), Java, JavaScript, React Native, TypeScript, OpenGL, R,

Skills: Team management, Collaboration, Communication, Large Team Projects, Research, OOP, PowerPoint, Web Design

CS PROJECTS

- **Autonomous F1Tenth Car** with Local Navigation with dynamic path scoring, Particle Filter-based Localization, Global Navigation using RRTs, and the capacity to autonomously drift using a canned set of motions;
- **Shakespeare-GPT:** Implementation of LoRA in pytorch, used to fine tune GPT-2 with a dataset of Shakespeare's works. Aim was to learn and understand GPT-2's inner workings.
- **Gradient Descent Behavior Analysis:** Implementation of multiple variations of gradient descent, including momentum, adam, adamw, on toy models in python to better visualize and understand them
- **Path Tracer with Caustic Effects:** Worked all the way up from basic ray tracing to an implementation of path tracing with photon mapping, to create realistic light focusing from refractions (caustic effects)
- **Minecraft in WebGL:** Simplistic version of Minecraft, with randomly generated terrain, clean chunk loading and deloading, and animated shaders
- **3D Animation Creation Tool:** Easily create animations for 3D rigged and skinned models
- **My Own OS**: Created an OS that runs on x86-32 complete with multiprocessor support, including handling of preemption, virtual memory, ext2 file system support, and limited syscal support
- **PopcornOS:** Integrating parts of our individual OS projects, enhanced it to be able to run more complex user programs, with support for libc programs, and ported both doom and image display capabilities
- **Pipelined Multicycle Processor in Verilog**: Simple (but painful) pipelined processor in Verilog capable of accurately emulating 8 ARM instructions
- **Programming Language Interpreter and Compiler:** Wrote a python-style syntax language interpreter and compiler in C, complete with scoped functions and variables

- **Building Energy Demand Prediction:** Worked on time series model forecasting, using LightGBM in order to determine energy consumption of buildings
- **Energy Demand Prediction:** Led a team of 6, Worked on time series model forecasting for predicting energy demand in the State of Texas (including SARIMA, VAR, and Prophet models)
- **WebCrawler:** Wrote a web crawler in Java that stored pages into a Trie, which could then be queried for search results using a tokenizer
- **Shapes the TCG:** Mobile Trading Card Game coded in React Native
- **Pong:** Java-based game of Pong coded as a personal project for fun during high school
- **Polar Coordinate System Graphing Tool:** Java-based graphing program that can draw polar graphs (educational)

PROGRAMS, EXPERIENCE

UT Austin, Austin, Texas August 2021 – May 2022,
Freshman Research Initiative, Energy Analytics

- Use Big data analytics and ML to analyze grid energy consumption data and forward predict demand
- Use ML and Big data to analyze and extract information about energy efficient buildings

NASA, Houston, Texas November 2019 – February 2020, August 2020
High school Aerospace Scholars Program + Moonshot Program

- Develop a deeper understanding of space and space exploration
- Design a lunar rover mission working with a team

ACHIEVEMENTS, HONORS, AND AWARDS

- University Honors, 2021 - 2023, University of Texas Austin
- Turing Scholars Honors Program, University of Texas Austin
- High School Valedictorian – Class Rank 1/713, Class of 2021
- Highest Ranking Graduate award, State of Texas, 2021
- AP Scholar with Honors, AP Scholar with Distinction
- National Merit Scholarship Award Winner, 2021

LEADERSHIP & COMMUNITY ACTIVITIES

Interact (High School Rotary), Houston, Texas August 2017 - June 2021
President (2020 – 2021), Webmaster (2019 – 2020), Member (2017 – 2019)

- Volunteer in community events. Highlights include food drives, holiday event volunteering (Thanksgiving, Christmas, Easter, etc.), potable water fundraisers for developing countries
- Webmaster: Maintain website for the club in addition to writing and creating each week's presentation and participate in volunteering events.
- President: Handled the organization and identification of volunteering events, in addition to an online transition to handle the COVID-19 pandemic. Participation in volunteering events.

Cybersecurity Club, Houston, Texas August 2018 - June 2021
Vice-President (2019 – 2021), Member (2018 – 2019)

- Member: Participated in Cyber Patriot cybersecurity competition
- Vice-President: Helped coordinate and organize participation in cybersecurity competitions and create lessons and awareness about cybersecurity