

Shreepa Parthaje

Chantilly, VA • shreepa.parthaje@gmail.com • (571) 599-6003 • sparthaje.github.io

Education

University of Virginia

Charlottesville, VA | Expected Graduation: May 2024

B.S. in Computer Science with Data Science Minor

Relevant Coursework: Data Structures and Algorithms, Computer Systems and Architecture, Adv. Software Development, Mechatronics, Probability, Multivariable Calculus, Ordinary Differential Equations, Linear Algebra, Discrete Math, Physics I & II

Thomas Jefferson HS for Science and Technology

Alexandria, VA | August 2017 – May 2021

Employment

Cloud Consultant Intern, Amazon Web Services

Herndon, VA | June 2022 – September 2022

- Revamped CI/CD pipeline for web service with CodePipeline for builds, tests, and deployments, replacing 80+ line bash script
- Identified critical user journey and designed React components for visualizing 30,000+ data points over 300+ customer audits
- Secured API Gateway and Lambda architecture with CloudFront behaviors, decreasing DDoS attack surface threat by half
- Migrated database to DynamoDB, implementing projection expressions for backend API and reducing page load time by 75%

Software Development Intern, Phone2Action

Alexandria, VA | July 2019 – August 2019

- Engineered 3D virtual reality experience in C# and Unity to model dialogue with Congressional representatives
- Developed REST API with Express.js and MongoDB, lowering speech-to-text and text-to-speech processing time by 45%
- Directed product demo & showcase at an investor event communicating technical concepts implemented to important investors

Research and Teams

Perception Engineer, Cavalier Autonomous Racing | Indy Autonomous Challenge

August 2022 – Present

- Experiment with transfer learning with OpenPCDet and Kitti dataset to train DNN for vehicle perception in LiDAR point cloud
- Evaluate PyTorch DNN leveraging Slurm, calculating performance at various distances using labelled data from ROS bags
- Visualize Extended Kalman Filter in RViz for validation, identifying vehicle behavior for perception on different banked turns

Software Operations Lead, UVA Solar Car Team | Formula Sun Grand Prix Competition

April 2022 – Present

- Coordinate team of 15 software engineers to develop C++ software for distributed embedded system for driving functionality
- Mentor 6 underclassman in development using React, Python, and Socket.io for new real time data visualization tools at 10 Hz
- Compute regenerative braking and acceleration curves for innovative one pedal drive, increasing battery range by 7.04%
- Streamline C++ software stack build processes with CMake in Docker environment, reducing average build time by 30%

Embedded Software Engineer, UVA Solar Car Team | Formula Sun Grand Prix Competition

October 2021 – April 2022

- Programmed C++ for distributed systems on Mbed RTOS to handle turn signal logic conforming to vehicle regulations
- Debugged critical message discrepancies on CAN bus through hardware in loop testing, improving data reliability by 67%

Flight Software Lead, TJREVERB | NASA's Educational Launch of Nanosatellites

October 2019 – June 2021

- Spearheaded a team of 7 developers to write flight software leveraging Agile development model to meet NASA deadline
- Wrote flight software infrastructure in Python, including Iridium radio drivers, global state machine, and unit tests
- Overhauled testing with hardware simulations in Python and software in the loop testing for remote work during pandemic
- Drafted CONOPS, created system diagrams, maintained master documentation, and pitched materials to NASA

Projects

Vertical Take-Off and Landing Aircraft | C++, MATLAB, Python, Fusion360, GitHub

- Modeled environmental dynamics in Simulink to tune PID control loops to stabilize aircraft in up to 5 m/s wind speeds
- Simulated Kalman filter to fuse accelerometer and barometer measurements, verifying estimations are accurate within 3%
- Wrote C++ navigation and control software with PlatformIO for a Teensy flight computer, optimizing for fast control cycles

MigosNET, Deep neural networks for lyric generation | Python, Keras, TensorFlow, BeautifulSoup

- Constructed dataset by scraping lyric websites using Python script, processing over 500+ kB and 80,000+ words of lyric data
- Investigated hyperparameters in TensorFlow to enhance recurrent text generation with LSTM model, minimizing loss by 62.7%

Othello (Reversi) Artificial Intelligence | Python

- Researched non-deterministic heuristic algorithm utilizing alpha-beta pruning to choose Othello moves within 5 seconds
- Optimized game state calculations for algorithm using binary operations on bit arrays decreasing calculation speed by ~87%

Skills & Certifications

Programming: Python, C++, C, JavaScript, TypeScript, MATLAB, Java, C#, Swift, Bash

Software: Git, AWS, Linux, ROS 2, Docker, React, TensorFlow, NumPy, Keras, OpenCV, Unity, Django, Flask

Certifications: AWS Developer (Associate), AWS Solution Architect (Associate), AWS Cloud Practitioner