





# ASHWANI RATHEE

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## Technical Skills

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**Languages:** C/C++, Python, SQL  
**Libraries/Databases:** Qt, Boost, Eigen, Ceres-Solver, Numpy, Pandas, PyTorch, MySQL, PostgreSQL, SQLite3  
**Tools:** CMake, Google-Test, Git, Jenkins, Docker, AWS

## Experience

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### FleetSafe

Jan 2023 - July 2024

Software Engineer(Embedded), *Previously Intern* | C/C++, Python

- Developed an Integrated radar-camera surveillance system for custom Linux Arm64 Quad Cortex-A53, Cortex-M4 board
- Added support for GPIO, UART, I2C and network layer for data collection and analysis of sensor data
- Utilized tools like GDB and Valgrind for debugging and shell/bash scripts for CI/CD
- Contributed to firmware for open loop boom barrier brushless DC drive prototype utilizing hall sensors

## Projects

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### Project Aria | C++, Python

- Working with UCSC AVIS lab on Meta's Aria glasses with a current focus on evaluating eye gaze tracking via MPS
- Designed eye gaze experiments in different environments and profiles to evaluate eye gaze tracking accuracy

### Semi-Automatic Brain Tumor Segmentation | PyTorch, Flask, Node.js, GCP | Best Medical Hack @MHacks'21

- Developed a semi-automatic annotator tool for Brain Tumor analysis utilizing PyTorch and Plotly-Dash
- Deployed the PyTorch-based UNET model with Flask server on Google Cloud with auto-scaling
- Implemented REST API with Node.js for vectorization of images deployed using Heroku

### 3D Gaussian Splatting | Python, Shell

- Implemented a Gaussian splatting pipeline using COLMAP for sparse reconstruction and OpenSplat for high-quality 3D scene reconstruction, improved results through effective scene trimming.
- Performed parameter sweeps and quality comparisons on the TanksAndTemples training set

### ExifViewer.jl | Image processing, Julia

- Developed ExifViewer.jl enabling efficient EXIF tag extraction and writing for image files
- Implemented methods to handle EXIF and MNOTE data from JPEG images, supporting keyword customization for EXIF tag filtering and thumbnail extraction

## ExtraCurriculars

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- Google Summer of Code'22 developer for JuliaLang: Improved Image Meta-Data analysis and GIF file format support
- ISCAS China's Open Source Promotion Plan'21 developer for JuliaCN: Improved documentation of JuliaImages
- Helped conduct Image Processing with Images.jl Workshop at MIT during JuliaCon'23

## Education

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### University of California Santa Cruz

Sept 2024 - June 2026(expected)

Masters in Computer Science(GPA: 3.85/4.0)

Santa Cruz, USA

- Selected Coursework: Computer Architecture(A-), Neural Computation(A)

### Panjab University

2019 - 2023

Bachelor of Engineering in Information Technology(GPA: 8.70/10)

Chandigarh, India

- Selected Coursework: Computer Architecture(A)