Shashwat Raj

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Education

Arizona State University **2023-2027**

B.S.E. in Computer Systems Engineering + B.S. in Mathematics (Dual Major), ***GPA :*** *3.78/4.0* *Tempe, Arizona*

Activities : GCSP, Venture Devils, ACM@ASU, Hacker Devils, Fulton Undergrad Research Initiative (FURI), LENS lab
Awards : Dean's List Fall'23, Spring'24, Spring'25; NAmU Scholarship $13500/yr; 2024-25 Go-Global Scholarship of $3000

Delhi Public School RK Puram **2009-2022**

High School Diploma, ***CGPA :*** *9.9/10* *New Delhi, India*

Experience

WoofCare Solutions Pvt. Ltd. **May 2025 – Present**

Founder India

- Developing a mobile app using Flutter + Firebase + a Python backend, connecting dog lovers & dog care services to improve lives of stray dogs in India. Project funded by EPICS (Engineering Projects In Community Service) at ASU.
- Integrated Google's Admob & Apps API to facilitate seamless location-based services & crowdfunds, partnering with over 60+ local and large NGOs in Pune, India including Voice of Stray Dogs (VOSD) and Dogs Friendly Pune.

Collective Design (CoDe) lab, Arizona State University **May 2024 – Present**

Machine Learning Developer and Researcher Tempe, Arizona

- Developing Reinforcement Learning techniques to optimize Earth science missions to autonomously determine priority observations in space, under the mentorship of Dr. Paul Grogan of SCAI Faculty at ASU.
- Co-authoring a review paper discussing relation between OSSEs & Mission Engineering.
- Trained DQN and QRDQN models using Pytorch, GeoPandas, TAT-C, Seaborn on NASA's Geos5 dataset, achieving 67% precision and 87% recall resp. Receiving total $4600 through FURI and GCSP Research funding.

MentorU **July 2025 – August 2025**

Product Development Manager Los Angeles, California

- Managed/Led a team of 5 developers developing a full-stack online platform for college admission counseling startup, to automate features like scholarship finder and personal story-building. Increased UX Research success by 150%.

Scientific Analysis Group, DRDO **July 2025 – August 2025**

Applied AI and Cryptography Engineering Intern Delhi, India

- Worked under Dr. Shantanu and Dr. Girish in the ML & Cryptography Lab on a distinguisher model using ensemble learning, involving RNN, LSTM and Encoder-based Transformer model-architecture to classify random text and encrypted text in AES in CBC mode, achieving 74% precision.

Projects

Tansen | Flutter, FastAPI, PyTorch, Huggingface, Tensorflow, Transformers | *github.com/darthvader58/tansen* **Present**

- A web app where musicians instantly get lessons and notes for any music piece and any known instrument through music transcription & AI suggestions via Onsets & Frames, Demucs and Basic Pitch, trained over 20000+ MP3 & MIDI files.

Kavvy | spaCy, Python, OpenAI Web Search, Pytorch, Next.Js **Present**

- An online platform that connects writers to traditional publishers. Curated a data consisting of 626 publishing houses in the US and 17942 published authors to find trends that can best fit a budding writer match the suitable publishers.

pip –race | Rust, Redis, ONNX, Docker, PyTorch, Express, React | *github.com/darthvader58/pip_–race* **October 2025**

- A real-time F1 race strategy system using QRDQN to predict pit-stops (0.87 AUC-ROC) and a Rust-based ML inference, delivering sub-50 ms latency, with live telemetry via dockerised WebSockets and Redis CLI, trained on FastF1 data.

Whatrobe | React, Cloudflare Workers (Databases, buckets, vectorize, AI) | *mywhatrobe.vercel.app* **November 2023**

- A web app that recommends personalized outfit based on your entire wardrobe for any occasion, using Cloudflare AI. Uses Cloudflare Workers for backend, including AI models, SQLite databases, Object Storage, and Vector Embeddings.

ML From Scratch | Python, Numpy | *github.com/darthvader58/Machine_Learning_From_Scratch* **June 2025**

- SVM, K-Means, Mean-Shift and Neural Networks Models made from Scratch using Numpy and Python, with a small portion using Pandas and Scikit-Learn's sklearn.preprocessing for Data Cleaning, indicating fundamental understanding and expertise in the math behind supervised and unsupervised learning algorithms

Other Projects and Publications listed on Github profile, Linkedin and Portfolio Website

Technical Skills and Other Interests

Languages: Python, Java, C, C++, HTML/CSS, Dart, MySQL, LaTex, React.js, Node.js, Go, Next.js, Ruby, CUDA, Lua, R, Matlab, Bash, Verilog, VHDL, Visual Basic, Perl, Linux

Technologies/Frameworks: PyTorch, Django, Flask, FastAPI, Redis, OpenCV, Keras, Scikit Learn, Pandas, GeoPandas, TAT-C, Git, GitHub, Tensorflow, Tailwind, Flutter, AWS, MongoDB, Firebase, CockroachDB, XGBoost, Numpy, Docker, Kubernetes, Matplotlib, KiCad, IoT, Arduino, ROS, FPGAs, Seaborn, Gazebo, Admob, Ansys

Hobbies: Flute, Battlebots, Boxing, Digital Art, Comp. Prog., Cricket, Basketball, Chess, Podcast host of *"Write It Out"*
Other Courses & Certifications listed on Linkedin