Harshavardhan Kuthadi

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SUMMARY

Software Engineer and MS Software Engineering student with a strong computer science foundation and 3+ years of industry experience. Proficient in **Python, JavaScript, C++** and skilled at mastering new technologies to design and deploy scalable systems. Experienced in building complex data pipelines, integrating ML libraries **(TensorFlow, PyTorch, Scikit-learn)**, and leveraging **AWS tools** for data-driven solutions. Adept at problem solving, collaborating in multidisciplinary teams, and contributing to cutting-edge AI research and system design.

WORK EXPERIENCE

Amazon Web Services (AWS) May 2025 – Aug 2025
Software Development Engineer Intern Seattle, WA

- Developed an **AWS Glue** ETL pipeline in **Scala** & **TypeScript** to replace a **3+ h**r manual KDS migration SOP, transforming JSON/**DynamoDB** data into partitioned Parquet for **Athena** queries; cut prep time by ~**95%**.
- Collaborated with finance to benchmark Glue vs. Step Functions for ETL and **AWS Redshift** vs. Athena+S3 for storage on **500 GB test data**; authored design doc on cost/performance trade-offs adopted by **4+ engineer team**.
- Authored optimized **SQL** queries to extract key data points from partitioned Parquet outputs, enabling **real-time** migration assessments across multi-region datasets **(1+ TB)** and supporting ad-hoc analytics.
- Productionized **PySpark** prototypes into **Scala**, right-sized compute, and eliminated Glue limitations by adding a custom bookmarking solution & fixed crawler race conditions; reduced runtime by **50%**.
- Provisioned infra via **CDK** (TypeScript) and **CloudFormation**: **S3**, Glue jobs/crawlers, Athena, **IAM**; maintained **Git** version control with code reviews, enabling repeatable deployments across **3+ regions**.
- Designed dashboards in **AWS QuickSight** to visualize ETL pipeline outputs and integrated **AWS Bedrock** to classify and group stream data, improving visibility and enabling anomaly detection on **100+ active streams**.
- Constructed **10+** custom **CloudWatch** alarms triggered by anomalies such as increased error rates or data volume drops; enabled immediate on-call notifications and resolved **95%** of incidents within SLA.

Handshake AI Solutions, LLC Sept 2025 – Present
AI Trainer - Computer Science Expert Remote, US

- Developed and evaluated **50+ domain-specific prompts** to assess **LLM** performance across specialized subfields, ensuring coverage of edge-case scenarios and nuanced domain knowledge.
- Reviewed **100+ LLM outputs** for scientific accuracy, clarity, and depth, generating structured feedback that improved model reliability and reduced factual errors by **~20%** in test runs.
- Contributed expert review to refine **AI understanding of complex CS topics,** leading to measurable gains in domain-specific benchmark scores (e.g., **+12% improvement on internal accuracy metrics**).
- Conducted independent literature-based research to design new evaluation categories, expanding **test coverage by 30%** and accelerating the feedback cycle **for model fine-tuning**.

o9 Solutions, Inc. Jul 2022 – Jul 2024
Software Development Engineer Bengaluru, India

- Delivered **10+ reusable modules** within the modular tenant architecture using **.NET (C#), MSSQL, and JavaScript/jQuery,** improving scalability and maintainability by simplifying tenant configuration management and deployments, and contributing design input that streamlined workflows across multiple teams.
- Created a conflict-resolution grid for the internal platform with **Kendo UI** & **JavaScript**, reducing merge time and boosting workflow efficiency of **20+** client facing teams by **40%**.
- Boosted test coverage by **30%** by adding unit tests for new **.NET (C#)** and **JavaScript** modules, reinforced **Jasmine/MSTest** suites with mocked payloads and regression cases, and improved reliability across CI pipelines.
- **Resolved 250+ bugs** across **C#** and **JavaScript**; authored release notes and **50+ high-quality bug reports** to strengthen release documentation and transparency.
- Refactored **60%** of the test codebase to follow **object-oriented** patterns in **Jasmine JS,** reducing code duplication by **10K LOC** and improving long-term maintainability.
- Maintained code quality through **Git** version control with systematic pull request reviews and branch management, reducing integration errors by **30%** across multiple full-stack projects.

OpenNets May 2021 – May 2022
Software Developer Bengaluru, India

- Architected and implemented a network topology simulator using **Mininet**, **Node.js, and MongoDB** that supported **10+ distinct network topologies** ; reduced misconfigurations in deployment scenarios by **~30%**.
- Built an intuitive **AngularJS-based UI** to let network engineers / users configure, edit, and visualize topology settings; this frontend cut down setup time per topology by approximately **40%**.
- Collaborated with senior engineers to integrate **validation & verification** layers in the simulator pipelines, including automated checks, leading to a drop in configuration-related bugs by **over 50%.**

EDUCATION

Arizona State University, Tempe, AZ Aug 2024 - May 2026
Master's in Software Engineering (Computer Science) | CGPA: 3.67/4
Coursework: Statistical Machine Learning, Deep Learning, Advanced DSA, Software Design/Requirements/Testing

National Institute of Technology Karnataka, Surathkal, India Jul 2018 - May 2022
Bachelor of Technology in Electronics and Communications Engineering
Coursework: Crypto and Blockchain Technologies, Image and Video Processing , Speech and Audio Processing

TECHNICAL SKILLS

Tools/Frameworks: Git, JIRA, TensorFlow, SciKit, OpenCV, PyTorch, Pandas, NumPy, NLTK, Matplotlib, CI/CD
Languages: Python, SQL, TypeScript, JavaScript, Scala, C#, C++
Cloud Services: AWS, Azure **Databases:** MongoDB, Oracle, PostgreSQL, MSSQL
Web Development: Docker, Flask, HTML, CSS
Certifications: AWS Certified Solutions Architect–Associate, Computer Vision with OpenCV & Deep Learning on Udemy

PROJECTS

Market Risk Forecasting Dashboard
- Built an AI-powered system in **Python** to forecast market volatility and drawdown risk using LSTM models in **TensorFlow**, improving prediction accuracy by **16%** over GARCH baselines and deployed on **AWS SageMaker**.
- Developed **Python** + **SQL** pipelines to ingest and process **5+ years** of OHLCV data (1M+ rows), generating engineered features (rolling volatility, moving averages, correlation matrices) reduced preprocessing time by **30%**.

WhatsApp Group Chat Analysis
- Processed **10,000+** messages with **Python**, **Pandas**, and **NumPy**; used **NLTK** (tokenization, stopwords) and **scikit**-learn to extract trends and insights; achieved **98%** parsing accuracy with regex-based preprocessing.

Image Clustering for Script Digitalization | Scikit-learn, Python, NumPy, Matplotlib
- Built a clustering model written in **Python** using **Scikit**-learn (KMeans, PCA) to group handwritten scripts, improving digitalization efficiency by **30%** with **92%** cluster consistency across test datasets.

Image Restoration of Natural Images
- Implemented deep restoration using **TensorFlow** (MPRNet) written in **Python** on degraded images, reducing noise levels by **45%** and achieving a 5.2 dB PSNR improvement over baselines.

Senti Chat | real-time sentiment analysis chat (React, Next.js, Express, Pusher, NLTK, scikit-learn)
- Designed a **real-time** chat app (**React**/**Next.js, Pusher**); built an **NLP** service with **NLTK** (tokenization, VADER) and **scikit**-learn to tag message sentiment/emotions on the Express backend; added unit tests (**Jest**/RTL).

Crypto Notes DApp | Token-gated notes on Ethereum (React, Next.js, Solidity, Hardhat, Ethers.js)
- Built decentralized notes app in **React/Next.js** with **Solidity** smart contracts and IPFS, enabling secure token-gated access; achieved **90%+** test coverage in **Mocha** ,**Jest** & reduced query latency ~30% with **GraphQL** API.

Safe Python Execution Service — Python/Flask, nsjail, Docker, GCP
- Designed and deployed a **Google Cloud Run** microservice to safely execute untrusted **Python** via nsjail sandboxing (no network, rlimits, timeouts), returning structured JSON; delivered secure, scalable execution with **sub-300ms p95 latency** and scale-to-zero cost profile.

HAAS (Heuristic Algorithmic Analysis System) – Logic-Driven Programming Language
- Engineered the **HAAS programming language** using SWI-**Prolog** DCGs, Flex/Bison, and GCC, implementing a full compiler pipeline (tokenizer, parser, AST, runtime evaluator) and delivering **5+** working language features (arithmetic, logic, control flow, ternary ops, REPL).
- Developed an interactive **REPL** and tutorial modules with sample programs, enabling **30%** faster onboarding for new users; validated functionality by executing **10+** sample programs covering arithmetic, loops, and conditionals, and integrated output redirection to files for audit-ready runs.

Pokemon Game Engine | C++, OOP, Data Structures
- Developed a modular Pokemon game engine in **C++** with **OOP and custom data structures**, validating **50+** simulated battles and **enabling extensible design** for new Pokémon and abilities.

Agile Project Management App | Java, Maven
- Engineered an Agile management app in **Java (Maven)** with integrated data driven Planning Poker estimation, boosting sprint estimation accuracy and feature decision-making in 5+ team projects.

ACHIEVEMENTS

Visual AI Hackathon Winner — Sponsored by Voxel51 Feb 2025
- Led the development of an **OCR**-based AI model for food safety using **Python, OCR, Pytesseract**.

Performer of the Quarter — o9 Solutions Dec 2021 & Jun 2022
- Recognized twice for overdelivering full-stack modules and refactoring the entire unit-test codebase, while meeting demanding SLA timelines.