AKSHAT GUPTA

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EDUCATION

M.S in Computer Engineering, **University of California, San Diego (UCSD)** Starts Sept 2025 – Ends Jun 2027
Relevant Coursework (Planned): Operating Systems, Modern Communication Networks, Internet Algorithmics, Computer Architecture, Machine Learning Algorithms, Cloud Infrastructure

B.E in Electrical & Electronics Engineering, **BITS Pilani, India** Aug 2019 – May 2023
Relevant Coursework: Object Oriented Programming, Computer Programming, Data Structures & Algorithms
CGPA: 8.39/10.00

SKILLS

Programming Languages	C/C++, Golang, Python, Bash, SQL
Networking	TCP/IP, Routing & Switching, Wi-Fi (802.11ax/be), DHCP, NAT, Packet Analysis
Operating Systems	Linux Internals, Kernel Debugging, Systemd, Device Drivers, Rsyslog
API Development	REST APIs, JSON-RPC, gRPC
Tools & Platforms	Docker, Jenkins, Git, AWS, BusyBox, Tableau
Analytical Tools	R Modelling, Pandas, NumPy, Tableau, MS Office Suite

EXPERIENCE

Software Engineer, Arista Networks (Serving Notice) Jul 2023 – Aug 2025
Pune, India

- **Driver2.0 – A Vendor-Agnostic Wi-Fi Driver Layer:** Developed a modular WLAN driver abstraction layer framework using **C/C++** to support Wi-Fi Access Points across multiple chipsets. This abstract layer reduced hardware-specific code by **60%**, reducing vendor dependency and enabling faster platform upgrades and reducing future maintenance effort.
- **Secure Remote Syslog over TLS – Common Criteria Compliant:** Developed a secure logging pipeline using **TLS**, **SHA256 hashing**, and **TPM-based certificate access**, meeting Common Criteria standards for enterprise environments. Automated contract validation and `rsyslogd` daemon restarts through access tokens to ensure tamper-proof log transmission.
- **CI Infrastructure & Test Automation:** Created a **Jenkins**-based CI/CD pipeline with build gating, log analysis, and device health monitoring. Improved system reliability by reducing faulty code merges by **over 50%** and enhanced nightly test stability by **35%** through automated device recovery and expanded test coverage.

Intern as Associate Consultant, Indus Insights Analytical Services (UK Insurance Client) Jan 2023 – Jun 2023
Gurgaon, India

- Developed optimized database pipelines on AWS Datalake, improving query latency by **40%**; merged 20+ years of legacy datasets by designing reconciliation logic tailored for inconsistent schemas, null patterns, and evolving policy formats.
- Built dynamic dashboards and executive summaries using Python (`Pandas`, `NumPy`), SQL, Tableau, Excel, and R; enabled faster insights into customer behavior, risk segmentation, and premium allocation strategies.
- Conducted in-depth exploratory data analysis and iterative model benchmarking to identify key claim-risk drivers; recommended new segmentation thresholds that enhanced high-risk profile identification for fraud and misreporting detection.
- Collaborated with cross-functional data engineering teams to validate schema consistency, refine time-based features, and automate weekly reporting workflows through Python-based ETL and Airflow-style logic templates.

PROJECTS

ML in Environmental Forecasting Aug 2024 – Present
Co-authored a review of **30+ ML models** (regression, ensemble, deep learning) for environmental forecasting across air, water and climate datasets. Compared models using metrics like **R^2, RMSE, MAE, F1 Score**, designed interpretability-focused flowcharts, and analyzed year-wise trends for model performance across temporal and spatial data.

UAV Base Station Positioning Algorithms Apr 2023 – Aug 2023
Evaluated **21 UAV algorithms** for disaster response and wireless coverage optimization. Achieved **23% better signal coverage** and **17% energy savings** using hybrid algorithms combining line-of-sight and grid-based approaches.

IoT Applications of UAVs Jan 2023 – Apr 2023
Analyzed **10+ IoT-UAV use cases** across smart cities, agriculture, and logistics. Quantified network-level benefits such as **30% faster data relay** and **40% wider sensor coverage** using simulation-backed performance models and system-level evaluations.

CERTIFICATIONS & AWARDS

CleanIT Hackathon Winner, Arista Networks Apr 2024
Developed an automated cleanup pipeline to report long-running tests and reboot-loops across APs, reducing autotest infrastructure load by **45%** and freeing up **30%** more testbed resources.
Integrated anomaly detection and reboot heuristics using **Python** and **Jenkins**, improving triage efficiency across regression suites.
Cisco Certified Network Associate (CCNA) – In Progress Exam Date: Aug 2025