Keerthana Purushotham – PORTFOLIO 📁 🔗 | *August – September*, 2025

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🔗 Linkedin | 🐙 Github | 📖 Papers & Citations | ◈ IEEE Member | 🗡 UCSD Alumni | 🎧 AUDIO SUMMARY 13m44s

SKILLS

- **Code** – Rust | Python | JavaScript | Typescript | React | C | Pytorch | C# | C++ | Java | bash | Git | CDK | SQL | ARM & Cross-tooling. | Linux kernel & iOS.
- **Tools** – DynamoDB, S3, APIGateway, CloudWatch, CDK, CloudFormation, Lambda, IAM, etc | TensorFlow & Keras | Kubernetes | System Performance.
- **Logic** – REST, Serverless & Network | RNNs, CNNs, Encoders, Attention | Full-stack | Advanced Math & Statistics | NLP, Transformers & GenAI | DevOps.
- **Security** – CVE Analysis- CVSS, NIST, CISA, Mitre, Debian, Redhat, Suse, FIPS | Threat Modeling & Remediation | Adversarial Attacks & Mitigation.

EXPERIENCE

A) Amazon Web Services (*AWS*) – *Software Developer* | *EC2, Amazon Linux Threat Mgmt.* | *Seattle, WA.*   AUG 22'–Now (≈ 3 *yrs*.)

1. **Security & Operations:**
   ① *Linux CVE Management & Response* – Managed Linux & kernel CVE detection with a strict 2-day SLA, handling 1,475+ CVEs, including Sev-2 incidents and remediation planning.
   ② *Vulnerability Patching* – Fixed 15+ security vulnerabilities in Amazon Linux packages, some requiring FIPS compliance.
   ③ *Knowledge Sharing & Documentation* – Maintained critical runbooks and mentored new developers.
2. **Design & Development:**
   ① *Full-stack & Operational features* – On top of triaging, mitigating, resolving complex bugs & bottlenecks across 2 legacy services; I pushed 12+ React features for a 3rd, new edge-compute APIGW service with role-specific access, to collaboratively deliver a high-frequency, data-intensive UI to provide real-time CVE status + related data; all including unit, integration & regression test coverage;
   ② *Cloud Development & Infrastructure Migration* - Migrated Rust-based client infra coupled with Py Lambdas, across services & engineered nested CloudWatch alarms for edge-compute based rate-limiting, request throttling, etc with robust, integrated DevOps.
   ③ *Networking & Concurrency Architecture* – Built privacy-enhanced RESTful features & secure client-side behaviors across distributed AWS infrastructure across services (DynamoDB, IAM, S3, APIGW, CloudFormation, etc). This includes several dense multithreaded + async workflows (Rust, Py, Js), each optimized for resilience against all classes of network & edge-case failures.
3. **Analytics & Automation:**
   ① *Automated CVE Evaluations* – Designed AI-driven CVE scoring and recommender systems, integrating AmazonQ-based chatbots to reduce zero-day SLA targets from two days to near real-time.
   ② *Security focused NLP & Statistics* – Built an automated CVE impact analysis algorithm, applying NLP & time-series analytics to enhance security risk assessment and reduce manual workloads for customers.
   ③ *Scripting* – Automated repetitive steps via custom scripts, saving approximately one week per month in manual overhead.

B) BP Logix – *Software Development Intern* | *San Diego, CA.*   JUN 21'–SEP 21' (4 *mos*.)

1. **Version Control Migration:** Led the transition from TFVC to Git, creating a comprehensive run-book for seamless replication.
2. **DevOps & Agile Exposure:** Delivered two bug fixes in C# using VScode, engaged in Scrum processes, enhancing understanding of Agile development, KPIs & release goals.

C) Cleo Communications – *Software Developer - Fulltime + Internship* | *Bengaluru, IN.*   SUMMER 19' & FEB 20'–DEC 20' (3 + 11 *mos*.)

1. **ML-Powered Data Transformation:** Built a pipeline to map features across disparate datasets, evaluating RNNs, Logistic Regression, and Fuzzy Logic (which performed best).
2. **Product Testing & Debugging:** Conducted cross-service unit testing on CIC Clarify (Node & Cluster); documented bugs via Postman.

D) Samsung R&D India – *Research Intern* | *Bengaluru, IN.*   MAR 19'–NOV 19' (8 *mos*.)

1. **Web Crawling & Data Extraction:** Developed subject-specific crawlers to extract social media data for research and analysis.

PUBLICATIONS —— [47 *Cites from* 2021 *to August* 2025]

Google Scholar | *Scopus Author ID:* 57221594595 | *ORCID record:* 0009-0000-8197-704 | *IEEE Author ID:* 37088644371 | *ResearchGate*
   → *Reviewed* 6 *IEEE papers in* 2025.
1. Cloud Storage Security Risks, Practices & Measures: A review. | **37** cites | **IEEE Xplore** – *Jan* 1, 2020.
2. Image de-noising using Auto-encoders & Spatial Filters for Gaussian Noise. | **7** cites | **IEEE Xplore** – *Mar* 15, 2021.
3. Context-Based Filtering of Conversational Data. | **2** cites | **ACL** – *May* 22, 2021.

EDUCATION

A) University of California, San Diego (*UCSD*) – *M.S. Computer Science* | *GPA 3.83/4.00* | *San Diego, CA.*   DEC 20'–JUN 22' (2 *yrs*.)

1. **Graduate Teaching Assistant** : *Mar 21 – Jun 22'* , 16 *mos.*
   ① [*Spring* 22'] *Advanced Data Structures* – *class of 300+ students with Paul Cao & Dr. Debashis Sahoo.*
   ② [*Winter* 22'] *Graduate Algorithm Design & Analysis* – *class of 500+ students with Dr. Russel Impagliazzo.*
   ③ [*Fall* 21'] *Graduate Algorithm Design & Analysis* – *class of 500+ students with Dr. Ramamohan Paturi.*
   ④ [*Spring* 21'] *Computer Organization & Systems Programming* – *class of 500+ students with Bryan Chin.*
2. **Grace Hopper Scholar** : *2021—2022* , 1 *year*
3. **Projects & Graduate Course Work** : *Jan 21'–Jun 21'* , 6 *mos.*
   ① *Neural CRF NER Tagger* – Built Bi-LSTM-CRF models for Named Entity Recognition (NER), beating baseline in sequence labeling.
   ② *Neural CRF for Constituency Parsing* – Built CKY-based constituency parser for PTB dataset, optimizing partition fn on GPU.
   ③ *Ubuntu System Performance* – Analyzed CPU, memory, scheduling, networking & FS for metrics like efficiency, latency etc.
4. **Graduate Research Apprentice** : *Jan 22'–Jun 22'* , 6 *mos.* | *NLP & Recommender Systems Lab advised by Dr. Julian McAuley*
   ① *NLP in Finance & Stats* – Researched stock prediction via text inference & trend analysis; specialized in equities, options & futures.

B) Ramaiah Institute of Technology (*MSRIT*) – *B.E. Computer Science* | *GPA 9/10* | *Bengaluru, IN.*   AUG 16'–AUG 20' (4 *yrs*.)

1. **Technical Awards :** ① Best Final Year Project 2020 MSRIT | ② Samsung PRISM Research Program Finalist 2020.
2. **Certifications :** ① Docker from Microfocus | ② Deep Learning for Computer Vision from NVIDIA
   ③ Data Science for Engineers, NPTEL | ④ Internet of Things using Arduino & Raspberry Pi.
3. **Clubs :** ① Debate Society- British/Asian Parliamentary | ② Coding Club | ③ Quiz Club | ④ Women's Football Teams: MSRIT & VTU (Uni & State).

C) Chethana P.U. College (*Deeksha Integrated IIT Coaching*) – *Jr. & Sr. yrs.* | *Boards: 90%* | *Bengaluru, IN.*   APR 14'–APR 16' (2 *yrs*.)

1. **Awards :** International Math Olympiad 2015 (IMO) - Silver Medal - *organized by the Science Olympiad Foundation (SOF)*

D) Sophia High School – *Elementary to Sophomore year* | *ICSE Boards: 92%* | *Bengaluru, IN.*   JUN 01'–MAR14' (13 *yrs*.)

1. **Awards & Activities :** *MUN, debate, theatre, school 1st rank & state top 50 state several times each year for international olympiads organized by the Science Olympiad Foundation (SOF), and athlete in field / track events. Received the following medals -*
   ① IMO (Math): 3 Gold, 1 Silver | ② ISO (Science): 4 Gold, 1 Silver | ③ IEO (English): 1 Silver, 1 Bronze | ④ Shotput: 1 Gold | ⑤ Discus Throw: 1 Silver.