

# Keerthana Purushotham — Winter 2025 — | ALL LINKS

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🌐 LinkedIn | 🐙 GitHub | 📄 Citations | 🏠 IEEE Member | ✂ UCSD Alumni | 🚩 Substack | 📖 Medium | 🎧 Audio 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 | Async, load-balancing & low-latency | Full-stack | Advanced Math & Statistics | ML, Deep-Learning, NLP & GenAI.
- **Security** – CVE Analysis- CVSS, NIST, CISA, Mitre, Debian, Redhat, Suse, FIPS | Threat Modeling & Remediation | Adversarial Attacks & Mitigation | CISO.

## 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 & RESEARCH PROJECTS — [ approx. 50 Cites from 2021 to August 2025 ]

[Google Scholar](#) | [Scopus Author ID: 57221594595](#) | [ORCID record: 0009-0000-8197-704](#) | [IEEE Author ID: 37088644371](#) | [ResearchGate](#)

→ {Reviewed 8+ IEEE papers in 2025.

1. **Text To Video App** – Async API with the Genmo Mochi-1 model hosted on 8xH100 GPU Kubernetes work nodes. | [LinkedIn](#) | [GitHub](#) – WIP.
2. **Accuracy Is Not Enough** – Confusion Matrix Metrics That Actually Work in CVE Impact Prediction. | [LinkedIn](#) | [Substack](#) | [Medium](#)
3. Cloud Storage Security Risks, Practices & Measures: A review. | 40 cites | [IEEE Xplore](#) – Jan 1, 2020.
4. Image de-noising using Auto-encoders & Spatial Filters for Gaussian Noise. | 7 cites | [IEEE Xplore](#) – Mar 15, 2021 | [GitHub](#).
5. Context-Based Filtering of Conversational Data. | 2 cites | [ACL](#) – May 22, 2021 | [GitHub](#).

## 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** | CSE 100 – class of 300+ students with Paul Cao & Dr. Debashis Sahoo.
- ② [ Winter 22' ] **Graduate Algorithm Design & Analysis** | CSE 202 – class of 500+ students with Dr. Russel Impagliazzo.
- ③ [ Fall 21' ] **Graduate Algorithm Design & Analysis** | CSE 202 – class of 500+ students with Dr. Ramamohan Paturi.
- ④ [ Spring 21' ] **Computer Organization & Systems Programming** | CSE 30 – 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 [ NLP ] **Neural CRF NER Tagger** – Built Bi-LSTM-CRF models for Named Entity Recognition (NER), beating baseline in sequence labeling.
- ② [ NLP ] **Neural CRF for Constituency Parsing** – Built CKY-based constituency parser for PTB dataset, optimizing partition fn on GPU.
- ③ [ OS ] **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.

### C) Other – Schooling | Bengaluru, IN.

JUN 01'–APR 16' (2 yrs.)

1. **Grades** : ① [Sophia High School] 10th ICSE Boards: 92% | ② [Deeksha Integrated IIT Coaching] 12th Boards: 90%

#### 2. Awards & Activities : MUN, debate, theater, school 1st rank & state top 50 several times between 2010 & 2015 across the annually-conducted, international Olympiads organized by the Science Olympiad Foundation (SOF), athlete in field / track events. Received the following medals -

- ① IMO (Math): 3 Gold, 2 Silver | ② ISO (Science): 4 Gold, 1 Silver | ③ IEO (English): 1 Silver, 1 Bronze.