Prateek Kumar

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EDUCATION

Master of Science in Computer Science, University of Southern California GPA: 3.9 **Jan 2021-Dec 2022**

Bachelor of Technology in Computers, IIT, Dhanbad GPA: 8.8/10 **Aug 2013-May 2017**

SKILLS

- **Languages:** Java, C#, Kotlin, Go, Python, JavaScript
- **Distributed Systems & Cloud:** AWS (DynamoDB, EC2, ECS, EKS), Azure, Kubernetes, Docker, Load Balancing, Auto-scaling
- **Backend & Platform Engineering:** Microservices, REST & GraphQL APIs, Service Design, SDK Development, Concurrency
- **Data & Storage:** DynamoDB, PostgreSQL, MySQL, Redis, NoSQL data modeling, Dataverse and CRM solutions
- **Mobile & Android:** Android SDK, Jetpack, Kotlin, Performance & APK size optimization
- **DevOps & Production:** CI/CD, Git, Observability, Incident Response, Reliability Engineering

WORK EXPERIENCE

Software Engineer 2 at Microsoft **May 2024–Present**

- Designed data models and ingestion pipelines that encode business rules and versioning, and built durable, idempotent workflows to validate, migrate, and reconcile large legacy datasets while driving reliable downstream integrations.
- **Azure Infra Data Pipeline optimization:** Health related Data Pipelines doesn't always contain enough data to take actionable steps. Uses Information Theory we rebuilt the health snapshot. Azure Container App, Load-Balancer, Auto-Healing application

Software Engineer at Amazon Web Services, Seattle **Jan 2023–April 2024**

- ***DynamoDB Database Architecture Optimization team*:** Worked on 'Cellularizing' the DynamoDB US-EAST-1 region to enhance reliability, involved segregating Compute and Storage resources to ensure all customers experienced top-notch performance. Effort led to impressive results: Up to 30% higher reliability and a 20% reduction in latency. Also **Enhanced AWS-SDK Java V1 & V2** to support new DynamoDB architecture.
- ***Load Balancer Auto-weight-Away***: Designed Load-Balancer-Management service which automatically allocates dedicated capacity to customers when they expect high traffic and automatically weigh-out effected load balancers, bringing down the latency by 10% during peak business hours and automates capacity adjustments by 90%. **AWS, Docker, EC2, Kubernetes, Jenkins, GraphQL**

Software Intern at MathWorks, Remote **May 2022–Aug 2022**

- ***Web Infrastructure Modeling Team*:** Optimizing Web-MATLAB during low bandwidth situations. Also Tasked with optimizing and debugging Testbed written in C++, and drafted algorithms to run JavaScript tests suite faster by 3 min.

Senior Software Engineer, Samsung Research and Development **June 2017–Dec 2020**

- ***Notification Framework***: Created and documented Samsung Smart-things Notifications Platform. Module facilitated users obtain alerts from smart devices pushed from the cloud. Gained Proficiency: **Android, AWS, REST, MY-SQL JAVA, Kotlin, Testing, DI.**
- ***Android Binary File (APK) Size Reduction***. Improved app rating by addressing customer feedback on high space consumption. Developed research **PAPER** and scalable automation tools with smart algorithms to reduce memory usage of mobile APKs.
- ***Contextual Widget***: Collaborated with interns to develop a smart phone notification framework, leveraging IoT context and suggesting IoT actions. Implemented on Samsung S21, augmenting brand value. Later **patented** by Samsung.
- ***Smart-things Continuity Recommendation***: Led team to develop module for seamless multimedia experience across different IOT devices using smart strategies. Augmented brand value for Samsung. Skills gained: **Scikit-learn, IOT, Android.**

Web-developer Intern, IIT-Dhanbad **May 2016–July 2016**

- ***Venue Booking Module***: Created Web based Venue Booking Application to book a venue within a campus, with custom workflow for each venue, with payment gateways. Created Modules using **AngularJS, Nodejs, HTML5, CSS, SQL, AWS, Django.**

ACADEMIC PROJECTS

- ***AI Projects:*** Designed Checkers Agent and Python Model which classifies comments as positive or negative. Skills: **NLP, NLTK.**
- ***2D Game Unity & 3D using OpenGL***: created 2D game using Unity and 3D game world development using OpenGL.

PUBLICATIONS

- ***PAPER*:** Paper presentation for Android Lint Tool optimization – proposed an optimized algorithm to reduce Android application size, by finding dead code and unused resources, that takes about 30% less time than classic Lint tool.
- ***PATENT***: Produced an IOT patent on Automated position and latch locking control mechanism using mobile apps 2016
- ***PATENT***: (GRADE A1) Intelligent Room Identification in IOT Environment using Device Type Watermarks (2020).

HONORS AND AWARDS

- ***CITIZEN Award (*Android APK Size Reduction*)* & *SPOT Award* (Multi client *RTSP casting)***