



# Charchit Gupta

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Worked on high TPS, low latency systems including Amazon Cart, Detail Pages and Device Management Services that are backed by gigantic databases having billions of products and millions of customers. Artist by nature, developer by heart... I like to build things.

## PROFESSIONAL EXPERIENCE (8 years)

### Tenured SDE II Last Mile Dec'19 - Current

#### Places Re-Architecture

- Designed new architecture for Amazon's Global Address Management system, migrating from key-value pair **RODBs** to Neptune **Graph DB** a **cloud-based infrastructure** provided by **AWS**.
- Migration included very large volume of graph data with **~2.6 billion** addresses mapped to **~300MM** deliverable nodes.
- Leveraged **micro-service architecture** to simplify friction between teams handling different geo-spatial entities.
- Oversaw development of this new architecture by **collaborating with** POCs in **down-stream / up-stream systems**.

#### Campus Experiment

- Piloted the experiment to model Place data in order to accommodate **~400K** Campus topologies based on real world situation.
- Identified and documented the short-comings of existing client-side RODB architecture and presented to leadership, convincing them to fund a full Place re-architecture project (listed above).

### Software Development Engineer II Ordering Apr'18 - Nov'19

#### Limitless Cart

- Modified the system architecture to provide limitless cart experience, allowing customers to add unlimited number of items to their cart. **Leveraged AWS cloud** infrastructure to accommodate **~15000 TPS** with **Zero regression in latency**.

### Software Development Engineer I Amazon Business Jul'16 - Mar'18

#### Parts & Accessories Widget

The widget is rendered for Amazon Business customers on B2B specific Detail Pages to display parts/accessories of a master product.

- Developed end to end search functionality into the widget to search among accessory products with an upper bound **p90 latency of 200ms** and **TPS of ~250**.
- Designed and developed batch request API to fetch paginated list of accessory products and winning offer.
- Collaborated the feature launch across **16 product categories** from technical point of view.

#### AB Detail Pages

B2B specific Detail Pages, renders different layout to AB customers compared to normal retail customer for same page URI.

- Formulated and prototyped required changes in the platform to alter layout of Amazon Detail Pages based on customer type.
- Implemented scalable solution and launched B2B specific Detail Page layouts for a single category of products in amazon.com.
- Administered launch of B2B specific Detail Pages in **17 product-categories** and **5 marketplaces** that includes: amazon.co.uk, amazon.de, amazon.it, amazon.co.jp and amazon.es serving traffic of **~5000 TPS**.

#### Variation Tables

Lists available variations of a Business, Industrial or Scientific product with variety of specifications.

- Devised a mechanism to periodically identify and archive stale data, optimizing the storage cost by over 90% on its first run, clearing **~633 million records**, saving **\$14000 in monthly billing** for expensive cache storage. This also improved the **lookup speed by 15%** to render Variation Tables widget on Amazon Detail Pages in amazon.com.

### Application Engineer Amazon Devices Nov'15 - Jun'16

#### Kindle Analyzer

- Built functionality to fetch device logs from archive based on Device/Customer Id and analyze core temperature trends for past 6 months to detect any heating issues. This helped support engineers to resolve customer issues faster.

### System Engineer TATA Consultancy / Microsoft Aug'14 - Oct'15

#### Microsoft's Managed Accounts List

- Implemented multithreaded search for querying multiple servers at once. This enabled the sequential search operation that took **~60-70 seconds** to be completed in **< 15 seconds**, an **improvement of ~79% with no extra infra cost**.

## SKILLS

OOPs, Data Structures, Algorithms, Micro-Services, Design Patterns, AWS Cloud, Deployment Pipelines, Project Management, C++, Java

## EDUCATION

**Rajiv Gandhi Technical University** **2010 – 14**  
B.E. (Computer Science) - 6.3 CGPA

Central Board of Secondary Education **2009 – 10**  
12th (Sr. Secondary) - 70%

Central Board of Secondary Education **2007 – 08**  
10th (Secondary) - 75%