# Mehul Agrawal

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## Education

**BITS Pilani, Hyderabad Campus**                                      *2017 - 2021*
*B.E. in Computer Science*                                             *8.24/10*

## Skills

- Proficient in Node.js, C/C++; familiar with Java, Python, SQL, MATLAB

## Experience

**Postman**                                                            *Jan 2021 - Present*
Software Engineer-II / Software Engineer-I / Intern

- Key contributor in writing Postman's in-house backend web framework in TypeScript. Migrating key microservices from Sails / Fastify achieved an average of 40% reduction in p95 latencies, and a 50-60% decrease in average and maximum CPU utilization.
- Spearheading the organization's migration to TypeScript as part of the Platform team's effort to improve backend platform hygiene and reduce production errors. Developed a utility to add type information to existing JavaScript codebases automatically, and another utility to migrate to a new configuration structure for all services.
- Implemented hot-reloading configuration support for Postman's WebSocket Gateway which holds millions of sockets during peak load. This brought the time-to-production for configuration and released product changes down from an average of 4 days to 2 minutes.
- Brought server-side induced client reconnections down by 95%, essentially eliminating the root cause. This was achieved by a combination of reliability improvements in the WebSocket gateway's implementation - inlining the underlying socket.io module to modify request and response payload parsing logic, and adding dynamic socket payload-size limits.
- Reduced the error rate in Postman's workspace load by 15% by implementing caching at a critical microservice boundary. This work done under the microservice availability initiative also achieved 50-80% performance improvement for an important internal endpoint, which unblocked use cases for large enterprise clients.

**Bank of New York Mellon**                                            *Aug 2020 - Dec 2020*
Graduate Summer Associate

- Developed user-facing tools to automate key operational tasks for the Revenue and Billing Services team at BNY Mellon.
- Used Visual Basic for Applications (VBA) and Microsoft SharePoint to streamline and automate tasks like VAT verification for high-volume transactions, and payments reconciliation for Transaction Lifecycle Management.

**Edifecs**                                                            *May 2019 - Jul 2019*
Software Engineer Intern

- Developed a Java package from scratch to extract insurance claim information from Electronic Data Interchange (EDI) files without using any external library dependencies.
- Analysed the performance of the package by generating test data containing millions of unique claims based on user-defined templates. Significant performance improvement was achieved and the existing system was replaced.

## Achievements

- Received a spot award at Postman for outstanding performance in 2022.

## Key Projects

**File Sharing Application using Reliable UDP**                        *Apr 2020 - May 2020*
*Computer Networks*

- Developed a file sharing application in Python by designing and implementing an application layer protocol for reliable data transfer over UDP based on Go-Back-N principle.
- Analysed network throughput by considering various parameters like network delay, packet loss, packet reordering, and packet corruption.

**RGB Image Encryption using Heat Equation and DNA Sequencing**        *Aug 2019 - May 2020*
Image Processing, Cryptography

- Built a novel encryption-decryption pipeline for RGB images using the Generalized Heat Equation, Chebyshev chaotic map for keyspace generation, and DNA Sequencing to scramble pixels, implemented in MATLAB.