

# Ramya Bygari

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## Education

### University Of Illinois Urbana Champaign (UIUC)

Master Of Science, Computer Science, GPA: 4.0/4.0

### National Institute of Technology Karnataka (NITK)

Bachelor of Technology in Computer Science

Champaign, Illinois

2022 - 2024

Surathkal, India

2016 - 2020

## Experience

### Razorpay | Software Development Engineer, Data Platform Team

Aug 2020 - Jul 2022

- Smart Routing : Migrated and transformed the existing rule-based batch processing system to a scalable stream processing ML Random Forest system to intelligently handle real-time payment transactions using Spark and Kafka. Increased payment success-rate by 6% thereby decreasing product gap and enhancing user engagement.
- Deployed distributed batch processing self-serve pipelines to provide a reliable and high throughput user personalization infrastructure/schema for seamless data analysis and data modeling. Developed data pipelines leveraging Hadoop sharded file system for efficient extraction and processing of terabytes of data, Elastic Search and Scala for data storage and ETL pipelines respectively. Decreased the user data serve latency by 50%, from 600 ms to 300 ms.

### Adobe Systems | Product Intern

May 2019 - July 2019

- Developed a C++ plugin to support platform-independent, variable frame-rate animation and low latency export through Lottie, an open-source JSON-based animation file. Reduced the animation export time by 60% (5 mins to 2 mins).

### PathCheck, MIT Media Lab SpinOff | Research Collaborator

Aug 2021 - Present

- Deployed a rapid fact-checking search engine, to curb the spread of misinformation that collates data from various sources, checks for authenticity, and concisely summarizes the reliable articles. ([covid-news.org](https://covid-news.org))

### Chennai Mathematical Institute | Research Intern

May 2018 - July 2018

- Implemented an end-end deep learning system using Keras and Tensorflow to estimate the damage of an agricultural field by segmentation of the weed from the main crop. Deployed over 300 farms in collaboration with Skylark Drones.

## Selected Projects

### Distributed Systems | Project Link

Aug 2022 - Dec 2022

- Implemented (in C++ and Python) a) Consistent Fault-tolerant Distributed ML Platform - performs model-serving and prediction, satisfies fair-time inference and fair-resource sharing, while handling n-simultaneous failure recovery of nodes, b) Scalable Distributed Fault Tolerant File System - enables versioned-file storage, retrieval, updation through consistent hashing and RPCs to communicate between replica nodes.

### Implementation of ECN+ for ns-3 | Project Link

Oct 2018 - July 2019

- Implemented ECN+ for ns-3 in C++, an extension of ECN (Explicit Congestion Notification), used to signal the sender about congestion in a network to avoid packet re-transmission, delay and losses in a network.

### Breast Cancer Treatment Planning | Project Link

Jan 2019 - Oct 2020

- Developed an ML system using Tensorflow and Keras with a customized loss function to handle dataset imbalance and proposed a modified LadderNet architecture for intermediate segmentation. Achieved an overall accuracy of 91.2%.

### Operating Systems Simulator

Nov 2017 - Dec 2017

- Developed a web application (using Django and Python) that simulates various functions of an Operating System such as system calls, process disk scheduling, memory management and page replacement algorithms.

## Technical Skills

**Languages:** Python, Scala, C/C++, Java, CUDA, JavaScript, GO

**Web Technologies:** MySQL, NOSQL, Flask, MongoDB, React, REST, AngularJS, Ajax

**Tools:** Docker, Kafka, AWS, Airflow, Hadoop, Kubernetes, ElasticSearch, Cassandra, DynamoDB Apache Spark, PySpark, Tensorflow, Keras, Pytorch, Github, JIRA, Confluence

## Leadership / Extracurricular

- Speaker at Open Data Science Conference (ODSC) APAC 2021
- Mentor and Workshop coordinator at Grace Hopper Conference (GHC) 2021
- Teaching Assistant: Data Science Discovery

## Coursework

**Graduate :** Distributed Systems, Independent Study/Research on distributed systems for GNNs

**Undergraduate (Selected) :** Advanced Database Systems, Operating Systems, Computer Architecture, Machine Learning, Data Mining, Big Data, Computer Networks