Ramya Bygari

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Education

University Of Illinois Urbana Champaign (UIUC) — Champaign, Illinois
Master Of Science, Computer Science (MS-CS Thesis Based) — *2022*

National Institute of Technology, Surathkal — Surathkal, India
Bachelor of Technology in Computer Science — *2016 - 2020*

Experience

Razorpay — Aug 2020 - Jul 2022
Data Scientist — *Bangalore, India*

- Smart Routing : Transformed the existing rule-based system to a scalable ML system that intelligently handles payment transactions. Saved in the order of millions of dollars. Increased success-rate by 4-6%.
- Building self-serve pipelines to provide the data analytics team with a seamless recommendation infrastructure. Developed data pipelines for efficient extraction and processing of terabytes of data collected daily.

University Of Cambridge, United Kingdom — Oct 2021 - Present
Research Collaborator | Prof. Andreas Bender — *Remote*

- Quantifying the rich information present in cellular features using GCNNs to accelerate drug discovery.
- Working on various representational learning algorithms to identify morphological patterns in cell population resulting from chemical and genetic perturbations.

PathCheck, MIT Media Lab SpinOff — Aug 2021 - Present
Research Collaborator | Prof. Ramesh Raskar — *Remote*

- Deployed a rapid fact-checking search engine, to curb the spread of misinformation that collates information from various sources, checks for authenticity, and concisely summarizes the reliable articles. (covid-news.org)
- Conducting behavioral studies to scale the privacy preserved solution developed to diverse countries such as India.

Adobe Systems India — May 2019 - July 2019
Product Intern | Adobe Animate Team — *Bangalore, India*

- Developed a plugin to support platform-independent and variable frame-rate animation export through Lottie, an open-source JSON-based animation file. Reduced the animation export time from 5 mins to 2 mins.

Chennai Mathematical Institute — May 2018 - July 2018
Research Intern | Prof. Prajakta Nimborkar, Skylark Drones — *Chennai, India*

- Implemented a deep learning system that effectively estimates the damage of a field by segmentation of the weed from the main crop. Helps farmers govern their crops efficiently.
- The system is currently deployed in over 2 million+ farms in India.

Selected Projects

Merchants - Payments Prediction — Dec 2020 - Feb 2021
Birendra Sahu, Nikhil Singh — *Razorpay*

- *Motivation*: Efficiently allocate resources required for processing payments (results in cost-savings, 6 million+ transactions processed) and derive valuable customer insights.
- Developed feature engineering and training data pipelines to predict the number of payments corresponding to a merchant at any time of the day.

Breast Cancer Treatment Planning — Jan 2019 - Oct 2020
Prof. Jeny Rajan, KMC Hospital Mangalore | Project Link — *National Institute of Technology Karnataka*

- *Motivation*: Reduce the pathologist's manual effort of individual biomarkers' assessment to determine the molecular subtype of cancer.
- Developed an ML system 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%.

Diabetic Retinopathy Detection — Jan 2020 - Aug 2020
Prof. K Chandrasekaran | Project Link — *National Institute of Technology Karnataka*

- *Motivation*: Early detection of blindness caused by Diabetic Retinopathy.
- Developed a system consisting CNNs and EfficientNet to weigh the granular details of an image. Achieved an accuracy of 94.80%.

Prostate Cancer Grade Classification June 2021 - Present

Prof. Shashidhar G Koolagudi | Project Link *National Institute of Technology Karnataka*

- *Motivation*: Detect the ISUP Grade Of Prostate Cancer.
- Developed an end-end deep learning system consisting of UNet for segmentation and ensemble models for classification. Achieved an accuracy of 92.38%

Implementation of ECN+ for ns-3 Oct 2018 - July 2019

Prof. Mohit P Tahiliani | Project Link *National Institute of Technology Karnataka*

- Implemented ECN+ in ns-3, an extension of the ECN signaling mechanism used to signal the sender about congestion in a network. PR under review in ns-3.

Social Sale : Ecommerce among college students Jan 2018 - July 2018

Prof. M. Venkatesan | Project Link *National Institute of Technology Karnataka*

- Developed e-commerce and mentoring web-application platform, with chatbot support, to all students within a college to exchange products and information.

Patent and Publications

- **An AI-powered Smart Routing Solution for Payment Systems | Conference Paper**
  Ramya Bygari, Aayush Gupta, Shashwat Raghuvanshi, Aakanksha Bapna, Birendra Sahu
  Accepted at IEEE Big Data Conference 2021 | Paper
- **Blindness (Diabetic Retinopathy) Severity Scale Detection | Conference Paper**
  Ramya Bygari, Rachita Naik, Uday Kumar P
  Accepted at 8th International Conference on Software Defined Systems (SDS-2021) | Paper
- **Prostate Cancer Grading using Multistage Deep Neural Networks | Conference Paper**
  Ramya Bygari, Rithesh K, Sateesh Ambesange, Shashidhar G Koolagudi
  Accepted at 3rd International Conference on Machine Learning, Image Processing, Network Security and Data Sciences (MIND-2021) | Paper
- **Automated Molecular Subtyping of Breast Carcinoma using LadderNet Architecture | Journal**
  S Niyas, **Ramya Bygari**, Rachita Naik, Bhavishya Viswanath, Tojo Mathew, Jyoti R Kini and Jeny Rajan
  Under revision at IEEE Journal Of Translational Engineering in Health and Medicine (IEEE-JTEHM) | Paper
- **System and method for graduate application assistance**
  Inventors : Sethuraman T V, **Ramya Bygari**, Srinidhi Murali, Sujay Bokil, Vidya G
  Under Review at Indian Patent Office | Patent document

Leadership / Extracurricular

- **Speaker at ODSC APAC 2021**
  Delivered a webinar on Razorpay's ML Smart Routing architecture and its capabilities. (Youngest Speaker)
- **Volunteer at Winvinaya Foundation (Indian NGO)**
  Teaching coding (JAVA and SQL) to Person With Disabilities (PWD's), economically disadvantaged, nurturing their communication skills, and assisting them in tackling interviews effectively.
- **Workshop coordinator at Grace Hopper Conference (GHC)**
  Helped conduct a workshop on MLOps to illustrate the importance of orchestrating ML pipelines.
- **Mentor at GHC 2021**
  Mentored students and helped them make their first open-source contributions. (Project : Hyperledger).
- **Core Placement Coordinator, NITK**
  As a part of the core placement team, conducted recruitment drives for over 250 companies at NITK.
- **Event Organizer at Smart India Hackathon (SIH) 2019, NITK**
  Coordinated with over 300 people from all over the country and helped conduct SIH, India's biggest hackathon.