# Tella Rajashekhar Reddy

+919063907050 rajashekhartella091@gmail.com LinkedIn Github

## Education

**IIT Dharwad** Nov. 2020 – 2024

*Bachelor of Technology in Computer Science* *CPI:9.5*

## Publications, Patents, and Presentations

- **AI Greenferencing: Routing AI Inferencing to Green Modular Data Centers with Heron**[1]
  **Tella Rajashekhar Reddy**, R. Gandhi, A. Parayil, C. Zhang, M. Shepperd, L. Yu, J. Mohan, S. Iyengar, S. Kalyanaraman, D. Bhattacherjee |
- **beLLMan: Controlling LLM Congestion** [1]
  **Tella Rajashekhar Reddy***, A. Deshmukh*, K. Tandon, R. Gandhi, A. Parayil, D. Bhattacherjee (* equal contribution) |
- **Improving training time and GPU utilization in geo-distributed language model training**[1]
  Palak, **Tella Rajashekhar Reddy**, B. Kataria, R. Gandhi, K. Tandon, D. Bhattacherjee, V. N. Padmanabhan |
- **A Power-efficient Image Classifier using Neural Network with Pipelined FFT architecture**[1]
  Md Shafiqul Hai,**Rajashekhar Reddy Tella**
  *IEEE-ESL June-2025*
- **Resource Profiling for Virtualized Radio Access Networks**[2]
  **Rajashekhar Reddy Tella**, Utkarsh Gupta, Gudepu Venkateswarlu, et al.
  *Advanced Networks and Telecommunications Systems (ANTS-2024), Guwahathi, India* |
- **Demonstrating the Energy Consumption of Radio Access Networks in Container Clouds**[2]
  Venkateswarlu Gudepu,**Rajashekhar Reddy Tella**,Carlo Centofanti, et al.
  *Network Operations and Management Symposium (NOMS-2024), Seoul, South Korea*|
- **Enhancing UAV Systems via Task Offloading at the EDGE**[3]
  **Rajashekhar Reddy Tella**, Andrea Marotta, Piero Castoldi, Luca Valcarenghi, Koteswararao Kondepu
  *Advanced Networks and Telecommunications Systems (ANTS-2023), Jaipur, India* |
- **Exploiting Open Source Tools for FPGA Design Flow**[4]
  **Rajashekhar Reddy Tella**, Shubh Agarwal, Koteswararao Kondepu
  *COMmunication Systems & NETworkS (COMSNETS 2024), Bengaluru, India* |
- **Real-time UAV Resource Monitoring and Alerts with Automated Control Mechanism**[5]
  Nisarg Parekh, **Rajashekhar Reddy Tella**, Lavanya Malakalapalli, Praveen Tammana, Koteswararao Kondepu
  *COMmunication Systems & NETworkS (COMSNETS 2024), Bengaluru, India* |
- **EARNEST: Experimental Analysis of RAN Energy with open-source Software Tools**[6]
  Venkateswarlu Gudepu, Bhargav Chirumamilla, **Rajashekhar Reddy Tella**, Abhishek Bhattacharyya, et al.
  *COMmunication Systems & NETworkS (COMSNETS 2024), Bengaluru, India* |
- **Experience: Implementation of Edge-Cloud for Autonomous Navigation Applications**[7]
  Yuvraj Makkena, **Rajashekhar Reddy Tella**, Nisarg Parekh,Prem Kumar Saraf,Annu et al.
  *COMmunication Systems & NETworkS (COMSNETS 2023), Bengaluru, India* |

## Experience

**Research Fellow** Jul. 2024 – Present

*Microsoft Research* *Bengaluru, India*

- Worked on building a router to handle the variable power availability when the GPUs are placed in wind sites hosting LLM inferencing services. Improved the goodput by 1.8x compared to SOTA.

**Software Intern** Jan. 2024 – Apr. 2024

*Dvara Solutions* *Dharwad, India*

- Developed a RAG based chatbot capable of responding to queries of field staff in the rural financial services through text and voice interfaces.
- Optimized token consumption by implementing a threshold based filtering for retrieved chunks post-similarity search.

**Mitacs Globalink Research Intern** May 2023 – Jul. 2023

*Lakehead University* *Ontario, Canada*

- Designed a **Convolution Neural Network** (CNN) to classify the MNIST database of handwritten digits and obtained an **accuracy of 98%** and optimized the CNN to classify the **image of 1 million pixels in 20ms**.

- Implemented a CNN using block circulant matrix method and 16-point FFT algorithm, resulting in a **reduction of logical elements used by 40% of an FPGA** and maintaining an accuracy of 96.89%.
- Co-authored a journal paper on the "**Power Efficient CNN using Pipelined FFT architecture** and it got accepted at Embedded Systems Letters".

**Undergraduate Research Assistant** May 2022 – Jun. 2024
*Networks Lab,IIT Dharwad* *Dharwad, India*

- Developed a real-time resource monitoring framework to keep the utilisation in check using **open-source** tools like Kubernetes, Grafana, Prometheus, Kafka etc.
- Built an open-source toolchain to compile and run hardware programs on FPGA, overcoming the costs of licensing.
- Measured the compute and memory utilisation stats for hardware running the Radio Access Networks under various traffic conditions.

## Technical Skills

**Programming Languages**: C++, Python, Bash
**Back-end Technologies**: MySQL, MongoDB, NodeJS
**Front-end Technologies**: HTML, CSS, JavaScript, ReactJS
**Tools and Machine Learning Frameworks**: Jekyll, Git,Keras, TensorFlow

## Projects

**Energy Analysis of different 5G RAN Architectures** |*Docker, Kubernetes, Grafana, S-tui* |

- Assisted in the deployment of various ORAN architectures like **Monolithic, Dis-aggregated, and CUPS**.
- Investigated the energy consumption **RAN and UE** using S-tui and Scaphandre under various scenarios.
- Measured values reveal that an **increase in the number of UEs from 1 to 10 results in 19.3% increase in energy consumption** (in disaggregated RAN)

**Resource Allocator** |*React.js, Node.js, Docker, MongoDb*|

- Developed a MERN stack application for remote resource allocation, using JWT for session handling.
- Utilized Docker for creating containers with a specified amount of resources and allocating them to the User.
- Scaled the application to handle concurrent resource allocation by 20 students at the same time.

**Edge Assisted Autonomous Surveillance using UAVs** | *Docker,Flask,Nginx* |

- Annotated over 200 images to prepare a custom data set to train the existing object detection models.
- Trained the object detection architectures(YOLOv3 & v5) on the custom dataset and containerised the model.
- Developed scripts to control the UAV based on the inferences received after processing the captured images.

**Automated Controlling Mechanism** | *Kafka, Grafana, Prometheus*

- Implemented a framework utilizing Grafana and Kafka to alert on CPU and Memory over-utilization proactively.
- Automated Slack alerts for CPU/memory exceeding 70%, facilitating proactive monitoring and timely notifications.
- Established auto-intervention at 80% CPU/memory usage to protect the device from potential damage.

**GPS-Enabled Payroll Automation with Image Capture** |*HTML, CSS, PHP, SQL* |

- Designed a web app to track the location and payroll of employees working remotely continuously.
- Utilized the Google Map API to track the location, and snapshots are clicked for every 5 seconds.

**Lab Websites** |*Jekyll, HTML,CSS, JS, BootStarp*

- Created a website for the Networks lab displaying the latest happening and its members.|
- Designed and built a website for Power and Energy Group showing about and publications of the group.|

**AI Greenferencing** |*vLLM,*

- Implemented a cross-site router to balance the workload around bad power conditions at the data centres that are situated at the wind farms.
- Performed a deep profiling exercise to understand the power requirements under different frequencies, TP degree and load values for AI inferencing tasks on different generations of GPUs.
- Built a simulator that can simulate 1000+ data centres with an accuracy of 95+.

## Relevant courses

**Computer Science**: Computer Programming, Data Base and Information Systems, Data Structures and Algorithms, Automata Theory, Design and Analysis of Algorithms, Computer Architecture, and Software Development
**Mathematics**: Linear Algebra, Basic Calculus, Discrete Maths, and Probability & Random Processes

## Certifications

- **Mitacs Internship completion certificate** |
- **Google TensorFlow Developer Certification** |
- **Coursera - Deep Learning Specialization** |

## Achievements

- 1st prize in hack for the industry track in Microsoft Global Hackathon, 2024
- Got selected for **Google ML Bootcamp** India.
- Received **Conference Travel Grant** and presented a paper at ANTS 2023, Jaipur, India.
- Received the esteemed **Student Travel Grant Award** at COMSNETS 2023 (Link).
- Secured an **exceptional AP grade** in Linear Algebra and Research and Development Courses.
- Secured **2nd place** in DevHack Hackathon held by PARSEC 2024
- Secured **5th place** in Alogostrike coding competition held by PARSEC 2023
- **Qualified level-1** in Convolve - A pan IIT Hackathon
- Served as institute-level **General Secretary** during the 2021-2022 academic year.
- **Student mentor** at SMP, IIT dharwad