CHANDRA KANTH NAGESH

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ACADEMIC QUALIFICATION

University of Colorado Boulder | Boulder, Colorado *2022 – Present*

Master's in Computer Science and Engineering – MSCS Research (CGPA: 4.0/4.0)

- **Subjects:** Linear Programming, Neural Networks and Deep Learning, Autonomous Systems, and Functional Programming

R. V. College of Engineering | Bengaluru, India *2014 – 2018*

Bachelor's in Computer Science and Engineering – B.Tech. CSE

Graduated First Class with "Distinction" (CGPA: 9.24/10, Top 10%)

- **Subjects:** Data Structures, Analysis and Design of Algorithms, Machine Learning, Theory of Computation, Game Theory, Compiler Design, Object Oriented Programming, Computer Architecture, Computer Graphics, Engineering Mathematics

RESEARCH EXPERIENCE

Image and Video Computing Group | University of Colorado Boulder

Graduate Research Assistant *May 2022 – Present*

Currently working on developing novel Salient Object Detection for vision accessibility, under the supervision of Dr. Danna Gurari.

PROFESSIONAL EXPERIENCE

MakeMyTrip.com (MMT) | Bengaluru, India

Senior Data Scientist – Data Science & Engineering *March 2021 – Dec 2021*

- Development of a Reinforcement learning solution for dynamic discount prediction using Contextual Multi-Armed Bandits (MAB). Model uses Deep Neural Networks to understand the contexts generated by clickstream and bandit model performs Thompson sampling on learnt representations and discount arm configurations to suggest optimal discount percentage.
- Experiment is live in production and yields 5-10% improvement over the current models and is consistently providing upto $1.5-2k increase in revenue each week with minimal drop in conversion rate. Experimenting with developing the neural network model with improved domain knowledge, so that the layers satisfy a monotonic condition. ***(Python, PyTorch, Tensorflow)***
- Developed a dynamically scaling version of Apache Airflow on AWS, as well as configuration scripts for AWS Sagemaker Notebook Instances, increasing team productivity. (***AWS EC2, Redshift, Athena, Shared Gateway, S3, Airflow)***

General Electric (GE) Digital, GE Power Data and Analytics | Bengaluru, India

Data Scientist – Data Science & Engineering *Aug 2019 – Feb 2021*

- Design & Development of a cloud based Deep Learning solution for distant monitoring of engine room staff, to ensure wearing of right safety equipment's (PPE) in critical installations. Deep Neural Network models such as YOLOv5, Faster R-CNN (ResNet 101-FPN), Mask R-CNN are trained on Nvidia Tesla V100s and finetuned on custom object detection datasets. Model inference (~0.015s) driven by on-site surveillance footage fed to the model on AWS. The model currently hones a test IoU of 0.925 and is in production at a GE Power Plant. It has received great attention from GE Regional CIOs. Developed standalone edge device products with packaged model that shipped to various shop floors across the world. ***(Tensorflow, PyTorch, Python, Torch, Shell, AWS Kinesis)***
- Development of Deep Learning solution using Faster R-CNN (ResNet18) / Neural Style Transfer and Tesseract OCR for serial number identification to aid lean manufacturing in shop floor. This solution involves image transformations combined with models deployed on edge devices (Google Coral) for efficient utilization of manpower. Experimented and developed model with FAIR's Rosetta Architecture for performing OCR. ***(Tensorflow, PyTorch, Python)***
- Development of a solution for the Power MAX Accounts Receivables, whose goal is to forecast the cash flow into the organization to improve the Cash Billing and Collection processes and reduce past due. Logistic regression, 4-layered DNN and Random Forest models have been experimented and trained on 2M+ dataset, by performing robust feature engineering. Model has a R2 score of 0.924 on 'Blind Test' dataset. ***(Scikit Learn, Optuna, Tensorflow, AWS Sagemaker, Python)***
- Development of a classification model for 'GE Analytics Engineering program' by GE Global Research on 'Pneumoconiosis' disease detection. By experimenting with various linear and ensemble classification models, the Elastic-Net Regressor with L1, L2 regularizations was chosen. Model hones an accuracy of 94.9% and AUC of 0.969. ***(Scikit-Learn, Python)***

General Electric (GE) Digital, GE Power Data and Analytics | Bengaluru, India

Software Engineer (Intern + FTE) – Data Science & Engineering *January 2018 – July 2019*

- Principal architect for the design and development of an end-to-end data lineage product that builds dynamic knowledge graphs of GE's datalake objects using graph database. The core engine of this product parses through source systems in the entire datalake, to create a map of the objects. This product rivals the current Data Lineage products in the market and is estimated to provide a savings of $250k/year to the organization. A patent is filed and is currently in review stage. ***(Neo4j, Cypher, Python, VueJs, Elasticsearch, JavaScript, MongoDB, Shell)***

- Architect for development of an efficient, fully automated solution for analyzing datalake logs for identifying and optimizing efficient usage of cloud resources. The software built analyzes >3TB of monthly logs using high-performance computing tech-stacks by achieving a performance improvement of 75%. ***(Spark, PySpark, Python, Shell)***
- Contributed in Digital Transformation initiatives in the organization, as a lead, mentor and participant in groups on innovation projects, hackathons in AI/ML, industrial IoT projects and process automation.

Hindustan Aeronautics Limited (H.A.L), Mission and Combat System R&D Centre | Bengaluru, India

Software Engineering Intern – Cryptosystems and Software Engineering *June 2016 – July 2016*

- Development of a cross-platform application for secure wireless communication between two remote airborne computers. My primary focus was on the study and implementation of how cryptographic algorithms can effectively be used in a warfare scenario. A paper on this research work is presented at CSITSS (IEEE), Bangalore. ***(C#, Visual Basic .NET)***

TEACHING EXPERIENCE

University of Colorado Boulder | Boulder, Colorado

Graduate Part-Time Instructor *Aug 2022 – May 2023*

- Currently working as an Instructor for CSCI 3104, Algorithms at CU Boulder. Involved in preparing the course structure, assignments, quizzes and final exams. Co-Instructor for a class of ~250 students along with Prof. Joshua Grochow.

Graduate Teaching Assistant *Jan 2022 – August 2022*

- Currently working as a Graduate Teaching Assistant for CSCI 3104, Algorithms at CU Boulder. Involved in preparing recitation materials, teaching, grading and developing assignment solutions. Spring 2022 and Summer 2022.

TECHNICAL SKILLS

- **ML:** Tensorflow, Scikit-Learn, PyTorch, OpenCV, Keras
- **Analytics/NLP:** NumPy, Plotly, Pandas, NLTK, Spacy
- **Backend:** NodeJs, Django, Flask
- **Languages:** C, C++, C#, Python, SQL, Git
- **Operating Systems:** Linux, OSX, Windows
- **Databases/Bigdata:** MongoDB, Spark, Redis, Postgres
- **Cloud:** AWS, Sagemaker, Kinesis, ELK, Athena
- **Frontend:** VueJs, HTML5, CSS

ACHIEVEMENTS & AWARDS

- **"Endowed CS Fellowship Award"** University of Colorado Boulder, Y 2022-23.
- **"Best Research Paper"** award at the "International Conference of Machine Learning & Application", (*ICMLA) 2019*
- Ranked **Top 10%** in Computer Science and Engineering, batch of 2014-18, R. V. College of Engineering, Bangalore, India.
- **5 x** '**Impact Award**' including **2 x 'Above and Beyond'** for my technical innovation projects and contribution at *GE Digital.*
- Earned '**Go-Tripper of the Month'** in June 2021 - recognized for curiosity and commitment to result at MakeMyTrip.
- **1st place** in '*GE NexTech challenge 2019*' for developing a ML Algorithm to identify defective layer in Additive Manufacturing part while 3D printing or after CT scan.
- **1st place** in '*Winning Deals using AI Hackathon 2019'* organized by GE Power.
- **1st place/Grand Prize winners** in *Mercedes Benz R&D Hackathon 'Hack.Bangalore 2016'* on *Connected Cars.*
- **Top 8 finish** in '*NASA Space Apps Challenge 2017*', organized by NASA and SAP Labs.
- **1st Place** at the National level '*Robothlon 2015'*, organized by IIT Guwahati and **"Best Outgoing Student"** award Class 10th

RESEARCH PUBLICATIONS

- **R. Lakhotia, N. Chandra Kanth and K. C. Madgula**: "Identifying Missing Component in Bechdel Test using Principal Component Analysis Method," *at International Conference on Machine Learning and Applications (ICMLA), Copenhagen, Denmark in 2019,* doi: 10.5281/zenodo.3299335, winner of **"BEST PAPER AWARD"** at ICMLA 2019.
- **N. Chandra Kanth, K. H. Rao, and A. K. Koundinya**: "Secure Handshake Mechanism for Autonomous Flying Agents Using Robust Cryptosystem," *at 2nd International Conference on Computational Systems and Information Technology for Sustainable Solution (CSITSS), Bangalore, 2017, pp. 1-5,* doi: 10.1109/CSITSS.2017.8447729.
- **N. Chandra Kanth, K. N. Ahmed and Shobha G**: "Greenhouse Monitoring System using IoT," *at International Conference on Development of Smart Cities: Interface, Governance and Technology, Bangalore, India in 2016, pp. 7-12.*

PROFESSIONAL CERTIFICATIONS

- **Deep Learning Specialization** by Deeplearning.ai + Coursera *October 2020*
  Sequence Models, Convolution Neural Networks, Improving Deep Neural Networks: Hyper parameter tuning, Neural Networks and Deep Learning, Structuring Machine Learning Projects
- **Introduction to Deep Learning with OpenCV** by LinkedIn Learning *August 2020*
- **Time Series Analysis in Python** by Datacamp *February 2020*
- **Statistical Learning** by Stanford University *July 2018*
- **Analytics Engineering Program** by GE Global Research *April 2019*
- **GPU Programming and Applications** by CUDA CoE, IIT-Bombay *February 2015*