

# HARIKRISHNAN RAGHUKUMAR

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## EDUCATION

Texas A&M University Aug 2022 – Dec 2023\*  
MS in Data Science (Computer Science)  
Relevant courses: Linear Algebra, Data Mining, Statistics, Computational Tools for Data Science

Indian Institute of Technology Madras (IIT- M) Aug 2015 – Jul 2020  
Dual Degree - BTech. in Engineering Design and MTech. in Automotive Engineering CGPA – 8.92/10  
Relevant courses: Machine Learning, Deep Learning, Multivariate Data Analysis, Reinforcement Learning

## PROFESSIONAL EXPERIENCE

**Texas A&M University**, College Station **Graduate Research Assistant** Jul 2022 – Present

- Developing RDash – a platform to strategically map the research capacity at Texas A&M to the available state and national government funding opportunities using Natural Language Processing.
- Automated keyword extraction using BERT algorithm for 60K+ funding opportunities offered by federal agencies.
- Implemented a recommender system to suggest the top 20 Texas A&M scholars for each funding opportunity in Python.

**American Express**, Gurgaon **Agile Product Owner** Jun 2021 – Jul 2022

- Acted as a liaison between business, IT and data governance teams to reform the Customer 360 data platform.
- Managed product backlog, defined 60+ user stories (using Rally) and performed UAT testing (using SQL) as part of scrum team to enable time-bound implementation of 6 critical projects including Kabbage data integration.

**Data Analyst** Aug 2020 – May 2021

- Analyzed, cleaned and compared 14 databases including 5 legacy systems using SQL to extract the best customer demographic data for 30 million+ customers belonging to 15+ countries.
- Designed and implemented an algorithm to derive customers' time zone using multiple phone numbers and addresses; the algorithm now helps customer care executives serve 80 million+ customers.

**PhotoGAUGE**, Chennai **Machine Learning Engineer** Jan 2019 – Jun 2019

- Automated the detection of manufacturing defects from low-resolution images of machine elements using the ResNet-50 deep neural network which is currently utilized by 3 manufacturing plants.
- Implemented active learning and enhanced the accuracy of confidence prediction to tackle labeled data shortage, reducing required training data by 18%. Further, created a GUI using PyQt to facilitate smooth data labeling.

**YLurn**, Chennai **Data Scientist** Aug 2018 – Dec 2018

- Designed and implemented a recommender system based on content-based filtering in Python to suggest suitable online courses for 800+ students depending on their current courses and skillset.

## KEY PROJECTS

**Information Retrieval (IR) Algorithms**, IIT Madras Jan 2020 – Mar 2020

- Performed detailed analysis of IR algorithms including ESA, LSA, VSM and Query Expansion using WordNet.
- Developed an IR algorithm combining query expansion and Latent Semantic Analysis techniques, which resulted in an 8% improvement in the MAP compared to the benchmark values of each algorithm on the Cranfield dataset.

**Fault prediction using supervised learning**, IIT Madras Aug 2019 – Mar 2020

- Implemented a Support Vector Machine classifier in Python to predict leakage in the air-brake systems using time-series pressure data from brake chambers with 93% accuracy.
- Hand-engineered features using coefficients of the SARIMA model for incorporating variations introduced by EPR.

**Cancer diagnosis using Artificial Intelligence (AI)** (Independent Project) Aug 2019 – Sep 2019

- Designed and implemented an image segmentation model with U-Net architecture using PyTorch to identify malignant cells.
- Devised an end-to-end solution and created its prototype to facilitate quicker cancer diagnosis in rural India.

## TECHNICAL SKILLS

**Programming Languages:** Python, R, C++, C, MATLAB, SQL, HiveQL  
**Data Analysis and Visualization Tools:** Tableau, Splunk, MS Excel, MS PowerPoint, Jupyter Notebook  
**Machine Learning / Data Science:** PyTorch, TensorFlow, NumPy, Pandas, Scikit-learn, SciPy, Matplotlib, OpenCV

## ACHIEVEMENTS

- TAMIDS merit scholarship for academic achievements Aug 2022
- 6<sup>th</sup> Rank, Gartner All India HackElite Competition, Gurgaon Nov 2019
- National Finalist, Philips Code to Care Challenge, Bengaluru Sep 2019