MOHAN RAMESH

MSc - Artificial Intelligence, Business and Analytics (First class honours)
BTech - ComputerScience and Electronics (First class)
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Summary

A professional AI researcher with very good entrepreneurial skills. Proficient in NLP, and can work with programming languages and technologies such as - Python, R, JSON, Deep Learning, Machine Learning, Transformers, Haystack, Pandas, Sklearn, Pytorch, Tensorflow, FastAI, OpenCV, Detectron2, BERT, and more. Has a proven track record of entrepreneurial ventures through building startups from scratch, working with early-stage startups, and winning startup and business competitions. Has degrees in both Engineering and Business with a motto of applying science diligently and ethically to help build a happy, functional society.

Research + Work Experience

Data Scientist Altada, Ireland, **2021 - 2022**
Tech used: Python, JSON, Bash, Pytorch, Haystack, HuggingFace, Detectron2, AWS, Git.

- Built evaluation systems for all machine learning (NLP and Image) models from scratch which improved turnaround time of 'development to production' from 1-2 weeks to just 1 day.
- Worked on question-answering models to extract semantic and specific information from non-performing loan files.
- Effortlessly upgraded all the systems in production that were running on SQuAD1.1 format, to SQuAD2.0 format by re-training existing models and consolidating the annotations as well as the corresponding document stores.
- Conducted comprehensive research/work on language models, knowledge base creation, haystack QA pipelines, word embeddings, and transformers.
- Improved NLP models' accuracy and performance from ~50-60% to +85%
- Mentored tech interns and Ph.D. researchers across wider teams, while closely working with the CTO of the company.
- Pioneered documentation practice at the company and set standards on confluence for effective presentation of APIs.

AI Researcher Econometrics Lab, Ireland, **2021**
Tech used: Python, R, Statistics, Mathematical modeling, Regression.

- Worked with **Prof. Niall Devitt** to perform research on production functions focusing on technology, efficiency, and the exponential growth of humankind in the 20th - 21st centuries.
- Two studies were conducted, focusing on 1) The effects of technological progress on economic growth in advanced countries over the past 130 years and 2) the singularity hypothesis and simulation theory, with the estimation of the chances of creating a seed AGI leading to an intelligence explosion.
- 'Total factor productivity and Whole brain emulation' equations were used to conduct regression experiments.

Researcher Decision making, Data Governance and Ethics Lab, Ireland, **2021**
Tech used: R, Data Analysis, Google Data Studio, MS Excel.

- Extensive research work was carried out in the fields of data ownership, GDPR policies, social media analytics, and regulating big tech firms. **Dr. Martin Cunneen** monitored several case studies and data-backed reports that were done to estimate the 'True value of data' by using the equation of the 'Economic value of information (EVI)', containing factors such as 'Associated revenue', 'Scarcity', 'Lifecycle' and 'Intrinsic value of data'.
- With **Dr. Fergal McGrath** as a mentor, a fantastic project was carried out to find solutions to the climate change problem, focusing on a sustainable energy standpoint and efficiently managing the European renewable energy grid. The study discusses the causes, the effects, and the solutions backed by data, to achieve a 100% renewables-based planet by 2050.

Data Analyst (2021) - Data Collection Engineer (2020) StatsPerform, Ireland, **2020 - 2021**
Tech used: R, SQL, GameLens, PowerBI, MS Excel, MS Teams.

- Analyzed and programmed live and post-game data for rugby union tournaments worldwide.
- A high-intensity, extreme deadline-based analysis work was being carried out with a superior level of team collaboration and real-time communication within the team and across higher-level management.
- Trained, analyzed & collected data for rugby using GameLens. Qualified to be the first foreign rugby rata analyst.

Machine Learning Programmer CSIS Lab, Ireland, **2020**
Tech used: Python, Deep Learning, XGBoost, RandomForest, ResNet 50.

- Under the guidance of **Dr. Alessio Benavoli**, I used ML and neural networks to predict housing prices based on a mixed dataset containing text, categorical, numerical, and image data.
- Natural language processing methods were used to encode and extract useful information present in the houses' descriptions. Ensembled XGboost with RandomForest to drastically improve the accuracy of the predictions.
- The project was eventually used for an inter-university Kaggle competition where it won 1st place.
- Mentored students from non-CS backgrounds and taught machine learning basics which helped them clear their university ML modules.

Computer Vision Engineer Drone Computing Lab, India **2018 - 2019**
Tech used: Python, C++, Keras, TensorFlow, Transfer Learning, GoogLeNet, Arduino.

- **Dr. D. Antony Louis Piriyakumar Douglas** coached me from the core concepts of computer vision to building a custom RC quadcopter with a mounted raspberry pi and a payload capacity of 1.5 kgs.
- The microcontroller was dumped with a pre-trained deep neural network that recognized traffic patterns. The prediction of optimum traffic light patterns was made using computer vision techniques (density and edge detection). Bluetooth modules were used to control the traffic lights.

Team Leader Microsoft Innovation Lab, India, **2016 - 2017**
Tech used: Python, HTML, CSS, Wireshark, GNS3, Android Studio, Machine Learning.

- Led a 4-member team for AI projects, performance optimization, and project pipelining activities.
- Successfully developed team members into leaders by working closely with them to develop tools useful for various machine learning and computer vision projects that were pitched in hackathons.
- Orchestrated project implementation for optimal prioritization and load balancing during crunch time.
- End-to-end application development was strategically planned and regularly completed in under 24hrs.
- Developed an android app that recognized food items. A minimum viable product that recognized some food items was created using basic image processing and deep learning techniques.
- A social network prototype for a closed university network was created, where the users were able to see the real-time location of their connections inside the campus.

Research Intern CORI (Partnered with Indian Space Research Organization), India, **2015 - 2016**
Tech used: Matlab, Scilab, Xilinx, VLSI, VHDL, Assembly.

- Proactive member of Crucible of Research and Innovation, with its team of unprecedented scientists and researchers from many areas, generated ideas for research that worked towards the development of prototypes that were used by external and internal parties.
- Worked under **Dr. V. Samba Siva Rao** to help build PISAT (PES Imaging Satellite), which is a remote sensing nanosatellite built by students. The satellite was launched on 26 September 2016 by ISRO using the PSLV-C35 rocket.
- Optimized encoding and decoding patterns for satellite data through digital modulation (FSK/FM) using FPGAs.

Personal Endeavors

Co-Founder and AI Engineer Squats_and _Startups, Global, **2022 - Present**

Tech used: Python, JSON, HTML, CSS, Docker, Natural Language Processing, Machine Learning, Transformers.

- This Entrepreneurial venture is my current company that focuses on developing a series of products and producing curated digital content in the areas of fitness and technology.
- One of the first products focuses on developing a conversational AI that can answer 'long-tail' questions, which are usually unanswerable by existing chatbots or AI assistants.
- A combination of machine learning, natural language processing, and question-answering models are being used to achieve the desired outcome.

Co-Founder and CEO Creativity Crew, India, **2016 - 2018**

Tech used: Python, C++, SimVenture, SolidWorks, Arduino, Raspberry-pi, MS Excel, Miro.

- Built a competent team from scratch as a startup company. Contributed to hardware, electronics, software, and mobile application prototyping. Constructed strategic marketing and business development plans.
- Completed a major prototype for BOSCH. The event had an exclusive focus on hardware startups. It was the largest of its kind where more than 1200 participants, including hardware startups, hardware enthusiasts, and other critical stakeholders of the hardware ecosystem from different parts of the country attended the event.
- My startup was 1 of the 9 finalists that secured incubation funding.

Awards

2021	Top CEO #1/65	Business simulation competition
2020	First place	Kaggle machine learning competition
2018	Winner of incubation fund	BOSCH-DNA electronics challenge
2016	Scholarship winner	Inter-University bot fighting tournament
2013	National rank(Gold)	International chintana science examination
2012	Player of the year	Willow power cricket academy
2011	Best student young scientist	Youngest person to receive the award
2009	Top fundraiser	Indian development foundation (Humanitarian causes)

Honourable Mentions

Language Enthusiast

English - Full Professional
German - Beginner
Kannada - Native
Telugu - Native
Hindi - Fluent
Tamil - Fluent
Malayalam - Intermediate

Professional Sports

Cricket - Professional
Table Tennis - Semi Pro
American Football - Amateur