Gokul Karthik Kumar

MSc Computer Vision @ MBZUAI · BTech Information Technology @ Anna University
Applying/Applied Machine Learning to real-world problems @ Microsoft Research | MBZUAI | TCS Research | IIT-M
Won 8 national-level hackathon type events @ UAE & India · Work Permit @ UAE & India

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Education

Mohamed Bin Zayed University of Artificial Intelligence | MSc in Computer Vision ⚲ *Abu Dhabi, UAE*
Current CGPA: 4 / 4 | Advisor: Dr. Karthik Nandakumar *2021/Aug – 2023/May*

- Coursework: Machine Learning, Computer Vision, Geometry for Computer Vision, Visual Object Detection & Recognition, Trustworthy AI
- MuCoT: Multilingual Contrastive Training Approach for Question Answering in Low-resource Languages (NLP)
- Empirical Study of Self Supervised Learning Approaches for Object Detection with Transformers (Computer Vision)
- Hate-CLIPper: Multimodal Hateful Meme Classification with Explicit Cross-modal Interaction of CLIP features (NLP + Computer Vision)
- IndianSpeech: Text to Speech for Indian languages with cross-lingual voice cloning (NLP + Speech)

Anna University | BTech in Information Technology ⚲ *Madurai, India*
CGPA: 9.74 / 10 | Department Rank: 1 / 130 | Thiagarajar College of Engineering *2015/Jul – 2019/May*

- Awarded Gold Medal of Excellence (Overall Best Outgoing Student) out of 1000+ graduating students in 2019 batch
- Relevant Coursework: Object Oriented Programming, Data Structures and Algorithms, Web Technologies, Data Base Management System, Software Engineering, Big Data, Data Mining

Experience

Microsoft Research | Machine Learning Research Intern ⚲ *Bengaluru, India*
Manager: Dr. Pratyush Kumar *2022/Jun – 2022/Aug*

- Building IndianSpeech: Text-to-speech for Indian languages with zero-shot cross-lingual voice cloning

Mohamed Bin Zayed University of Artificial Intelligence | Machine Learning Research Assistant ⚲ *Abu Dhabi, UAE*
Advisor: Dr. Karthik Nandakumar *2021/Jan – 2021/Jul*

- Developed DoENet, a double encoder using Variational Autoencoders and GANs, for unsupervised adversarial attack classification

TCS Research | Machine Learning Developer ⚲ *Chennai, India*
Manager: Dr. Avinash Achar Academic Collaborator: Dr. Balaraman Ravindran, IIT Madras *2019/Apr - 2020/Nov*

- Improved sales prediction models for the retails client using N-Gram models and Deep Neural Networks like RNNs and LSTNet
- Implemented latest spatio-temporal travel time prediction models as baselines for evaluating temporal difference prediction models
- Developed intelligent employee profile retrieval system using text mining techniques
- Developed computer vision pipelines to solve curved text extraction, perspective correction etc

IIT Madras / One Fourth Labs / AI4Bharat | Machine Learning Project Intern ⚲ *Chennai, India*
Advisors: Dr. Pratyush Kumar, Dr. Mitesh Khapra *2018/Dec - 2019/Mar*

- Developed robust scene text recognition architecture for Indian languages
- Implemented Efficient and Accurate Scene Text Detector (EAST) for Indian signboard scene text detection
- Developed handwriting recognition system using Convolutional Recurrent Neural Networks for automatic answer-script evaluation
- Set up programming competitions for the PadhAI Deep Learning course

Skills

Technologies	Deep Learning, Computer Vision, NLP, Speech Processing, Data Science, Social Network Analysis
Programming	Python, C++, R, MySQL, LaTeX
Python Packages	PyTorch, Hugging Face, Keras, Tensorflow, Scikit-Learn, OpenCV, NLTK, NetworkX, Numpy, Pandas, Matplotlib
Platforms	Google Cloud Platform, Amazon Web Services, MS Excel, Tableau, QlikView
Software Frameworks	Git, Streamlit, FastAPI, Flask, HTML, CSS, JS, Shiny

Honors

2021	**Winning Team** in the ADAFSA Agrithon for developing visual plant disease diagnosis, optimal animal clinic placement etc.
2021	**Finished Second** in the GITEX x AI-everything High Flyer challenge for the AI-powered dubbing presentation
2021	**Selected among the Top 10 teams** for the deep tech startup incubation program by Khalifa Innovation Center
2020	**Innovation Pride Award** by TCS for winning the Image Enrichment Challenge 2 out of 100+ participants
2020	**Winning Team Lead** of TCS DDS ML Hackathon out of 8 teams for developing the corn-hybrid recommendation system
2019	**Special Initiative Award** by TCS for the data driven solution to DDS profile hunt
2019	**Winning Team Lead** of IIT Madras AI Hackathon out of 500+ teams for developing safe route identification system
2019	**Gold Medal of Excellence** for the best outgoing student out of 1000+ students of TCE
2018	**Winning Team Lead** of Guvi-HCL AI Hackathon out of 30+ teams for developing the qualitative recommendation app
2017	**All India Rank 1** in the NPTEL course 'Social Networks'
2017	**Top 8** in the MHRD Smart India Hackathon out of Top 50 teams for the development of smart evaluation application

Certifications

2021	**Generative Adversarial Networks (GANs) Specialization,** By Deeplearning.ai on Coursera
2020	**Futures Thinking Specialization,** By Institute for the Future on Coursera
2020	**Computer Vision Nanodegree,** By Udacity
2020	**Deep Learning Specialization,** By DeepLearning.ai on Coursera
2018	**Data Science Summer School,** By ACM and IIT Madras at Goa University
2018	**Data Analyst Career Track,** By DataCamp
2017	**Applied Data Science Specialization,** By University of Michigan on Coursera
2017	**Social Networks Course,** By IIT Madras on NPTEL (All India Rank 1)

Mini Projects

2020	**Standard Deep Learning Projects** - Baby Name Generation, Neural Style Transfer, Image Segmentation etc.
2020	**Cryptocurrency Market Prediction** - Using Long- and Short-term Time-series network (LSTNet).
2017	**GitHub Social Network Analysis** - Exploration of data science repositories

Publications

MuCoT: Multilingual Contrastive Training for Question-Answering in Low-resource Languages ⚲ *Dublin, Ireland*

GOKUL KARTHIK KUMAR, ABHISHEK SINGH GEHLOT, SAHAL SHAJI MULLAPPILLY, KARTHIK NANDAKUMAR *May-2022*

ACL-W: Association for Computational Linguistics - Workshop on Speech and Language Technologies for Dravidian Languages

Method And System For Forecasting Sales Based On N-Gram Model ⚲ *Online*

GOKUL KARTHIK, AVINASH ACHAR, BALARAMAN RAVINDRAN *Oct-2020*

Indian Patent Application E-1/52276/2020-MUM

Dynamic Bus Arrival Time Prediction: A Temporal Difference Learning Approach ⚲ *Online*

VIGNESH LKP, AVINASH ACHAR, **GOKUL KARTHIK** *Jul-2020*

IJCNN: International Joint Conference on Neural Networks

Reference

Dr. Karthik Nandakumar ✉ *karthik.nandakumar@mbzuai.ac.ae*

ASSOCIATE PROFESSOR, MOHAMED BIN ZAYED UNIVERSITY OF ARTIFICIAL INTELLIGENCE *Advisor in MSc & internship at MBZUAI*

Dr. Pratyush Kumar ✉ *pratykumar@microsoft.com*

SENIOR RESEARCHER, MICROSOFT RESEARCH *Manager in internships at Microsoft Research & IIT-M*