# Meghana Venkata Palukuri

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Education

Program Institution GPA Year Rank

M.S. & Ph.D. - Computational Science, The University of Texas at Austin 3.76/4 2022 - Engineering & Mathematics

B.Tech (*Hons*) & M.Tech - Chemical Eng. Indian Institute of Technology Madras 8.94/10 2017 2

Professional Experience

* **Applied Scientist, Amazon (Last Mile Science)** *Project: Road network communities* Aug 2022+
  + Built road network communities as a **new geospatial planning unit** for many applications using graph algorithms.
* **Graduate Research Assistant, UT Austin** [***Ph.D. Thesis***](http://dx.doi.org/10.26153/tsw/44379)*: ML methods - network community detection* [**[Paper]**](https://doi.org/10.1371/journal.pone.0262056)2018-22
  + Developed [**Super.Complex**](https://sites.google.com/view/supercomplex/home), an **Auto-ML pipeline** with **98% accuracy**, and a **fast** [**RL method**](https://doi.org/10.1101/2022.06.20.496772)for **NP-hard subgraph search**.
* **Applied Scientist Intern, Amazon (Last Mile Science)** *Project: Route Planning* Jun - Aug 2021
  + Accurately **forecasted productivity** of delivery routes using **AutoML**, and **selected features** to influence for improvements.
* **Applied Scientist Intern, Amazon (Brands Experience)** *Project: Substitute Product Recommender* Jun - Aug 2020
  + Built **product embeddings** using catalog **text** and performed **fast neighbor search** for substitute products with **99%** Recall.
* **Cloud Software Engineering Intern, Schlumberger** *Project: Time-Series Operations* Jun - Aug 2019
  + Developed a **Domain Specific Language** in **Scala** for custom calculations on **real-world time series data** on **Google Cloud**.
* **Graduate Assistant, IITM** *Master’s Thesis: Human bio-chemical reaction network analysis in autism* [**[Paper]**](https://www.frontiersin.org/articles/10.3389/fphys.2022.760753/full)2016-17
  + Developed **two pareto-optimization algorithms** and **two metrics** for optimal reaction **network flow distribution**.

PUBLICATIONS & CONFERENCES

* 6 papers including 3 peer-reviewed journal papers, 8 conferences, with 25 citations and h-index 3. [[**Google Scholar**](https://scholar.google.com/citations?user=R3mhYvYAAAAJ&hl=en&oi=ao)]
* [**5min Talk:**](https://youtu.be/4rRgmlNNTyQ)“**Super.Complex**: **ML pipeline** for community detection in networks”, ***TACCSTER Symposium*** (2019)

SKILLS

* **Tech: Python** (sklearn, nltk, networkx, igraph, dgl, stellargraph, pandas, geopandas, pyspark, faiss, pytorch, tensorflow), **C++**, **R**, **Matlab**, **SQL**, **Scala**, **Latex**, **Linux**, **HPC**, **AWS**, HTML, CSS, JS, Google Cloud, C, Java, C#, Docker, autotools, CI, lcov. [**[Github]**](https://github.com/meghanapalukuri)
* **Courses:** RL, Bayesian Deep Learning, Pattern Recognition, Graph Theory and ML, Statistical Models for Big Data, NLP

Research Projects

* **AutoML image clustering with similarity graph embeddings [**[**Code**](https://github.com/marcottelab/2D_projection_clustering)**]** *(DL, CV & Graph ML)* Jan-May 2022
  + **Combined image and similarity graph embeddings** of 2D projections and clustered them into 3D objects (**97% accuracy**).
* **Hyperspectral image denoising & classification** [**[Code]**](https://github.com/meghanapalukuri/hyperspectral-image-classification)*(Statistical Methods in Scientific Computing)* Mar-May 2018
  + Applied a framework with **one-against-one and one-against-all SVMs** for **multi-class** classification with **90% accuracy**.
* **Implementation of ML algorithms for image & speech classification** [**[Code]**](https://github.com/meghanapalukuri/Static-Pattern-Classification)*(Pattern Recognition)* Aug-Dec 2016
  + Built **neural networks, GMM, HMM, Bayes, k-means and k-nn classifiers** for speaker identification and image recognition.

Co-curricular Activities

* **Founder, Literary Fest ’Saahitya’** *(a self-driven initiative, commended by the Director, Dean and Alumni)* (Feb - Apr 2016)
  + Formed and lead a **team of 60** across 6 divisions to **organize a literary festival with 30 events** and a **footfall of 1000** in IITM.

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| **VR** | Designed **spatial augmented reality** at Envisage, India’s largest student tech show (**2000+ people**) |
| **Coding** | **Windows App(C#): Wardrobe Assistant- outfit suggestions** *2016* ***Microsoft****-24hr Code.Fun.Do Hackathon* |
| **Robotics** | Coded locomotion for **autonomous transwheel** robot 2013 **Asia-Pacific Robot Contest (Robocon)** |

Awards & Honors

* **Two-time Professional Development Award** and **Best** [**Poster**](https://meghanapalukuri.github.io/images/msdas_poster_Meghana.pdf)Award at **SIAM** TX-LA **Conference**. 2018-20
* **O’Donnell Fellowship** and **General ISSS Financial Aid Award** by UT Austin towards research. 2017-19
* **KVPY Fellowship** (**Dept. of Science and Technology, India**) and **C.A. Sastri Endowment Award** (IITM) 2012-17