Meghana Venkata Palukuri

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EDUCATION

Program	Institution	GPA	Year	Rank
M.S. & Ph.D. - Computational Science, Engineering & Mathematics	The University of Texas at Austin	3.76/4	2022	-
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*: ML methods - network community detection [Paper] 2018-22
  - Developed **Super.Complex**, an **Auto-ML pipeline** with **98% accuracy**, and a **fast RL method** 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] 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**]
- **5min Talk:** "**Super.Complex**: **ML pipeline** for community detection in networks", *TACCSTER Symposium* (2019)

SKILLS

- **Tech: Python** (sklearn, nltk, networkx, dgl, stellargraph, (geo)pandas, numpy, scipy, pyspark, faiss, pytorch, tensorflow), **C++**, **R**, **Matlab**, **SQL**, **Scala**, **Latex**, **Linux**, **Unix**, **HPC**, **AWS**, HTML, CSS, JS, Gcloud, C, Java, C#, Docker, autotools, CI, lcov. **[Github]**
- **Courses:** Reinforcement Learning, Bayesian Deep Learning, Pattern Recognition, Graph Theory and Machine Learning, Statistical Models for Big Data (including Regression Analysis), Natural Language Processing, Computer Vision, Optimization

RESEARCH PROJECTS

- **AutoML image clustering with similarity graph embeddings [Code]** *(Computer Vision, DL & 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]** *(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]** *(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.

NLP	**Ranked 2nd** in sentiment classification of Amazon reviews with logistic regression using sentence embeddings. Built human protein embeddings (from sequences) with **ProtBERT** for complex representation.	(2021)
VR	Designed **spatial augmented reality** at Envisage, India's largest student tech show (**2000+ people**)	(2015)
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

O'Donnell Fellowship, Two-time Professional Development Award and **Best Poster** at **SIAM** TX-LA **Conference**.