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 The University of Texas at Austin
Oden Institute for Computational
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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	2021	-
B.Tech (Hons) & M.Tech - Chemical Eng. XII	Indian Institute of Technology Madras	8.94/10	2017	2
XII	Vidyadham Junior College, Hyderabad	97.5%	2012	1
X	Johnson Grammar School (ICSE)	95%	2010	1

RESEARCH PROJECTS (ML, HPC & OPTIMIZATION)

- **ML techniques for community detection in networks using known information** (*Ph.D. Thesis*) Jun 2018-present
 - Developed **Super.Complex**: an Auto-ML pipeline achieving **99% accuracy**, outperforming **10** state-of-the art algorithms.
 - Formulating a **deep reinforcement-learning algorithm** to solve **subgraph search**, an **NP hard problem**.
- **Hyperspectral image denoising & 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 data classification** (*Pattern Recognition*) Aug-Dec 2016
 - Developed from scratch and compared- **neural networks (MLP)**, **GMM**, **HMM**, **Bayes**, **k-means** and **k-nn classifiers**.
- **2D Heat eqn. finite difference solver application in C++** (*Tools in computational science*) Aug-Dec 2018
 - **Features**: **performance** - 0.4s (100x100 mesh), tests (**bats**, **Travis CI** & **Docker**), **100%** code coverage (**Icov**), **0** memory errors (**Valgrind**), visualization (**Paraview**), build (**autotools**), **HPC env** (**Stampede2**), storage (**HDF5**), parser & logger (**GRVY**).
- **Human bio-chemical reaction network analysis for treating autism** (*Master's Thesis*) Jun 2016-May 2017
 - Developed **2 constrained pareto-optimization algorithms** and **2 metrics** for optimal reaction **network flow distribution**.
- **Design of microfluidic networks performing floating point operations** (*Systems & Control*) Jul 2015-Jun 2016
 - Employed **genetic algorithms**, **MINLP** to **design optimal micro-fluidic networks** for **combinatorial sequence sorting**.

SELECT INTERNATIONAL CONFERENCES

- **Talk**, "Super.Complex: An ML pipeline for community detection in networks", *TACCSTER Symposium* (Sep'19)
- **Poster**, "Supervised community detection", *Workshop: Developments on Statistical approaches in Data Science* (Jun'19)

PROFESSIONAL EXPERIENCE

- **Cloud Software Engineering Intern, Schlumberger** *Project: Time-Series Operations* Jun - Aug 2019
 - Deployed on **Google Cloud** - a **Domain Specific Language** in **Scala**, for **custom calculations** with real **time-series data**.

SKILLS

- **Coding**: **Python** (scikit-learn, tensorflow, networkx, pandas), **C++** (MASA, PETSc), **R** (tidyverse), **Matlab** (Statistics & ML, Optimization, ODE Solvers), **Scala**, **Latex**, **Linux** & **HPC** (at TACC), [Github](#). **Exposure**: autotools, C, Java, C#, Arduino
- **Courses**: Reinforcement Learning, Bayesian Deep Learning, Pattern Recognition, Graph Theory, Stat. Models for Big Data

CO-CURRICULAR ACTIVITIES

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

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

AWARDS & HONORS

- **O'Donnell Fellowship, GIFA & Professional Development Award**, by UT Austin towards research. 2017-19
- **KVPY Fellowship** (Dept. of Science & Technology, India) & **C.A. Sastri Endowment Award** (IITM) 2012-17
- Secured Rank **64** in **International Math Olympiad**, admitted to IITM - **India's best college (top 0.5% of 500k)** 2012