# SAYANTAN BANERJEE | MA19M017

INDIAN INSTITUTE OF TECHNOLOGY, MADRAS

REGISTRATION NUMBER: 00/00/00/000



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Program	Institution	CPI/%	Year
M.Tech. (Industrial Mathematics scientific computing)	IIT Madras	8.42	2021
MSc (Pure Mathematics) [proof]	University of Calcutta	81.2	2019
BSc (Mathematics) [proof]	St.Xavier's College	75.83	2017
XII - WBCHSE [proof]	M.S.R.K.A.V.	89.6	2014
X - WBBSE [proof]	M.S.R.K.A.V.	91.1	2012

#### **Scholastic Achievements**

- IIT GATE MATHEMATICS AIR-99(2019)[proof]
- "INSPIRE" scholarship by DST,Govt.of India for being in top 1% in board exam, XII [proof] 2014-2019
- awarded Merit Certificate by St.Xavier's College, Kolkata for securing above 70% in first four semesters of **BSc.** Honours[proof] 2017

### **Key Projects**

• M Tech Thesis

not decided yet:

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• Google and Pagerank Algorithm Modelling Workshop: Prof S. Sundar

Mar 2020-May 2020

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- o studied Pagerank computation using Markov chain and Frobenius theorem
- o constructed a basic search engine based on pagerank algorithm using python, scipy and beautiful soup

### • Topological optimization in one dimension

Jan 2020-Mar 2020

Modelling Workshop: Prof S.Sundar

- studied about topological sensitivity analysis using classical gradient technique
- o formulated cost functional for two one dimensional equations to show that the form of topological gradient and classical gradient may differ from each other.

## • Decision Tree in Python

Sep 2019-Nov 2019

OOPs Lab :Prof.S.Sundar

- o Implemented SLIQ(decision tree classifier) from scratch for handling both the numerical and categorical attributes, using gini index, information gain and entropy.
- Used a pre-sorting technique for optimization in the tree growth phase.
- Implementation of linear solver in C++ | Direct methods and iterative methods Sep 2019-Nov 2019 OOPs Lab :Prof.S.Sundar
  - Implemented methods like gauss elimination and jacobi on the basis of sparsity constraints to optimize the time and space.

### **Course Work**

- Mathematics: Mathematical Modelling in Industry, Modelling Workshop II, Numerical Linear Algebra , Numerical Methods & Scientific Computing, Numerical Optimization, Numerical Solution of PDE
- Algorithms and Data Structures: Data Structures in Scientific Computing, Object Oriented Programming.
- Machine Learning & Statistics: Data Analysis & Visualization in R/Python/SQL,Applied Statistics,Stochastic Methods in Industry
- Finance: Mathematical Finance
- Online course: AI with Deep Learning (from GUVI, An IIT-M and IIM-A Incubated Company)[proof]

### **Technical Skills**

- Programming Languages: C++, Python ,R
- Tools and Technologies: Numpy ,Pandas,scikit-learn, TensorFlow, LATEX

### Extra Curricular Activities & Positions of Responsibility

- Participated in **Madhava Mathematics Camp** sponsored by **NBHM**, **Govt. of India** [proof] Oct 2015-Nov 2015
- Paricipated in **Analytica-2014** organized by Department of Mathematics, St.Xavier's College, Kolkata [proof]
- Taught unprivileged children every sunday for one year on behalf of the NGO IRERD [proof] 2015-16
- Coordinator of Forays-2020