M.Thivesh Chandra

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Education

Indian Institute of Technology Bombay *2019 - Present*
Bachelors of Technology | Computer Science and Engineering *CGPA : 9.16/10*

Sri Chaitanya Narayana Junior College *2017 - 2019*
Intermediate | Telangana State Board of Intermediate Education (TSBIE) *Percentage : 96.7 %*

Narayana Concept School *Spring 2017*
Matriculation | Central Board of Secondary Education (CBSE) *GPA : 10/10*

Scholastic Achievements

- Secured **All India Rank 8** in **IIT JEE Advanced** among **0.17 million** candidates *(2019)*
- Secured **All India Rank 91** in **IIT JEE Main** among **1.2 million** candidates *(2019)*
- Achieved **Rank 16** in **TS-EAMCET** out of **2.2 lakh** students conducted by **TSCHE** *(2019)*
- Achieved **Rank 11** in **AP-EAMCET** out of **2.2 lakh** students conducted by **APSCHE** *(2019)*

Olympiads

- Among the **Top 35** students selected for **Orientation Cum Selection Camp**(OCSC) for **INMO** *(2017)*
- Placed among **Top 1%** in **NSEC** and received **Certificate of Merit** *(2018-2019)*
- Qualified for **Indian National Chemistry Olympiad**(INCHO) examination *(2018-2019)*
- Among the **Top 30** in **Regional Mathematics Olympiad**(RMO) out of **900** students *(2015-2016)*
- Achieved **KVPY Fellowship** organised under DST,**Government of India** *(2017-2018)*

Internships

Software Development *May 2022 - July 2022*
P.Kiran Kumar | **Amazon**

- Gained hands-on experience with **AWS** resources like Dynamo DB, S3, VPC, **EMR Clusters**, Step Functions
- Automated the **creation** of AWS resources during code deployment using **CDK** (Cloud Development Kit)
- Scheduled the execution of various **pyscripts** on EMR clusters using Step Functions and **Cron** Scheduler

Web Development *May 2021 - July 2021*
Dr.Chandra Shekhar | **The Right Doctors**

- Worked on hosting servers based on the deployment of various angular apps on **GoogleCloud** Instance
- Utilised **firebase** to send push notifications and used **SQL,Mongo** Databases in conjunction with **NodeJS** application.
- Utilised **TokBox Service** to facilitate calls between doctors and patients along with **OTP** based user **authentication**

Key Projects

Plagarism Checker *July 2020 - Nov 2020*
Prof. Amitabh Sanyal | Software Systems Lab *IIT Bombay*

- Built a rudimentary **copy checker**, which, given a bunch of source files using **Bag of Words** strategy
- Computed **signature vector** for each file and using **cosine similarity** to determine the **extent of similarity**
- Built a website with **authentication** using **Angular** in which user can upload files for checking plagiarism

Restaurant Management System *Jan 2022 - April 2022*
Prof. Umesh Bellur | Database and Information Systems Lab *IIT Bombay*

- Built a restaurant website using **React** (frontend) in which there are options for dine in and online ordering.
- Implemented access control for **permission**s for different types of users like customer, owner, delivery person etc
- Created an analytics page for owner to see the **analytics** like best dish, best delivery person, best customer etc.

IPL Website and Database Design *Jan 2022 - April 2022*
Prof. Umesh Bellur | Database and Information Systems Lab *IIT Bombay*

- Automated the insertion of IPL data into a **PostgresSQL** database using **python** scripts by parsing csv files
- Designed an **interactive** website, using **Angular**, **NodeJS** and Postgres, for visualizing various IPL statistics
- Presented various **statistics** about every player, match, season, and venue with an extra feature to add new venues
- Implemented **slotted page** structure for efficient storage and table **scan** operations for a toy database

SCLP Compiler *Jan 2022 - April 2022*
Prof. Uday Khedker | Implementation of Programming Languages *IIT Bombay*

- Developed an end-to-end compiler from **scratch** for SCLP, a C-like language to generate **TAC**, **RTL** statements
- Implemented **scanning**, **parsing** and register allocation algorithms from scratch using **lex**, **yacc** and C++

Operating Systems *July 2021 - Nov 2021*
Prof. Mythili Vutukuru | Operating Systems Lab *IIT Bombay*

- Implemented a basic shell with simple commands like **ls, cat, echo, sleep, cd, exit** using child processes in **C**.
- Supported **serial**, **parallel** and **background** execution of various processes along with signal handling
- Implemented Synchronization using **pthreads** on master-worker thread pool, a simple **file system** from scratch

Other Projects

Intelligent Learning Agents *July 2021 - Nov 2021*
Prof. Shivaram Kalyanakrishnan | Foundations of Intelligent Learning Agents *IIT Bombay*

- Implemented **epsilon-greedy** exploration, UCB, KL-UCB, and **Thompson Sampling** for multi-armed **bandit**
- Implemented Value Iteration, Howard's Policy Iteration, determined **optimal** policies in **Anti-Tic-Tac-Toe**

Image Deblurring *July 2021 - Nov 2021*
Prof. Ajit Rajwade | Fundamentals of Digital Image Processing *IIT Bombay*

- Implemented **reverse heat** equation in MATLAB along with stopping thresholds based on **curvature** models
- Performed various experiments on various images to compare the result images based on MSE minimisation

Image Reconstruction *Jan 2021 - April 2021*
Prof. Ajit Rajwade | Advanced Image Processing *IIT Bombay*

- Implemented **ISTA** and **OMP** over **DCT** and **HaarWavelet** basis for reconstruction of compressed images.
- Utilized **L1_LS** package to implement **CS** based reconstruction of images from **tomographic projections**.

Estimation of Covariance Matrix *Jan 2021 - April 2021*
Prof. Ajit Rajwade | Advanced Image Processing *IIT Bombay*

- Implemented a research paper on the estimation of Covariance Matrix from **compressive** Measurements.
- Compared the standard normal **deviation** of estimated matrix for sparse matrices, numbers dataset and **real images**

TCP Variants Comparision *Jan 2021 - April 2021*
Prof. Vinay Ribeiro | Computer Networks *IIT Bombay*

- Simulated data transfer between nodes with **TCP-Reno**, **TCP-Cubic** connections using **socket programming**
- Simulated **FTP** and **CBR** flows with **Ethernet** and **Wifi** as link layers using **ns3** and **Wireshark** for observations

ARQ Protocol *Jan 2021 - April 2021*
Prof. Vinay Ribeiro | Computer Networks *IIT Bombay*

- Implemented data sender and receiver for **UDP** connections along with packet **authenticity** and **integrity**
- Implemented Automatic Repeat Request(**ARQ**) Protocol to deal with **re-transmission** in case of packet loss

Optimized Permutations *July 2020 - Nov 2020*
Prof. Ajit Diwan | Data Structures and Algorithms *IIT Bombay*

- Implemented **square root** and **power** functions by using **cycles property** of permutations in linear time
- Used extended Euclidean algorithms and **Chinese Remainder Theorem** to implement **logarithms** in linear time

Technical Skills

Programming	Python, C++, Java, Bash, Arduino
Web Development	HTML, CSS, JavaScript, TypeScript, Angular, React, Android, NodeJS
Softwares	LaTeX, MATLAB, Git, AutoCAD, SolidWorks
Packages	Numpy, Matplotlib, Pandas, FLTK, lex, yacc, OpenGL, sqlite3

Courses Undertaken

Core Courses	ML for Remote Sensing, CG, DeepLearning for NLP, **DSA**, Data Analysis and Interpretation, Digital Image Processing, **AI and ML**, Computer Networks, Digital Logic Design, **Design and Analysis of Algorithms**, Logic for CS, Discrete Structures, **OS**, **Computer Networks**, Computer Architecture, Foundations of Intelligent and Learning Agents, **Database and Information Systems**, Automata Theory, Implementation of Programming Languages
Mathematics	**Introduction to Probability**, Linear Algebra, Calculus, **Regression Analysis**, Introduction to Numerical Analysis, **Applied Stochastic Process**, **Statistical Inference**

Extra-curriculars

- Volunteered to work for National Service Scheme (**NSS**) under **Green Campus Program**. *(2019-2020)*
- Secured **All India 13th** rank in **Association of Mathematics Teachers of India(AMTI)** *(2014-2015)*
- Bagged **All India Rank 19** in **Association of Mathematics Teachers of India(AMTI)** *(2013-2014)*
- Winners in **Department Volleyball Tournament** conducted by **CSEA** IIT Bombay *(2022)*
- Winners in **Department Kho-Kho Tournament** conducted by **CSEA** IIT Bombay *(2023)*
- Participated in **XLR8** competition conducted by Electronics and Robotics Club of IITB *(2019)*