OTHER PROJECTS

Permutation Class   *Autumn 2020*
Guide: Prof. Ajit A Diwan | Course Project   *IIT Bombay*

- Created an **Abstract Data Type** representing a permutation and implemented operations like **inverse and square root** in linear time using the property that permutations are a **collections of disjoint cycles**
- Used **Extended Eucledian Algorithms** in conjunction with **extended Chinese Remainder Theorem** to implement logarithms for permutations in linear time by **automated congruence solving**

Hitomi Compressed Sensing   *Spring 2021*
Guide: Prof. Ajit Rajwade | Course Project   *IIT Bombay*

- Reconstructed video frames from a coded snapshot i.e. a superposition of consecutive binary filtered frames
- Implemented **Orthogonal Matching Pursuit** for patchwise reconstruction assuming sparsity in DCT-Basis

Comparison of TCP variants   *Spring 2021*
Guide: Prof. Vinay Ribeiro | Course Project   *IIT Bombay*

- Implemented **socket programming in C** to send files using different variants of **TCP**.
- Used Bash to automate experiments and generate plots for comparing throughput, delay and packet loss
- Performed experiments and recorded network traffic using **Wireshark** to analyse window scaling graphs and verify **TCP Cubic** has a faster window increase during congestion avoidance than **TCP Reno**.

Tomographic Reconstruction   *Spring 2021*
Guide: Prof. Ajit Rajwade | Course Project   *IIT Bombay*

- Reconstructed complete slices from simulated measurments of brain MR volume slices at 18 random angles
- Used inverse radon transformation in **MATLAB** using **Ram-Lak** filter for reconstruction of a single MRI slice
- Performed **coupled-CS** based reconstruction by solving a regularized least squares problem with a custom objective

TECHNICAL SKILLS

Programming	C++, C, Python, Java, Bash, MATLAB, VHDL, SQL, Streamlit
Software	Android Studio, Solidworks, Wireshark, Git, AutoCAD, Quartus, LaTeX

POSITIONS OF RESPONSIBILITY

Teaching Assistant | *MA-109, Calculus*   *December 2019*

- Conduct regular **tutorial sessions** for a batch of **45** students in association with Prof. Monoj Kumar keshari
- Responsible for **teaching** and **evaluating** them, providing feedback to the Instructor in-charge.

Organiser | **Techfest**, Responsible for handling artists and overall logistics during events   *December 2019*

COURSES UNDERTAKEN

- **Computer Science:** Data Structures and Algorithms + Lab, Discrete Structures, Data Analysis and Interpretation, Software Systems Lab, Design and Analysis of Algorithms, Digital Logic Design + Lab, Logic for Computer Science, Computer Networks + Lab, Abstractions and Paradigms + Lab, Advanced Image Processing, Operating Systems*, Artificial Intelligence*, Computer Architecture*, Blockchains and Cryptocurrency*, Foundation of Learning Agents*, Automata Theory**, Databases and Information Systems**

- **Misc:** Calculus, Linear Algebra, Quantum Physics, Numerical Analysis**, Economics, Sociology*

*To be completed by December 2021   ***To be completed by April 2022*

EXTRACURRICULARS

- Successfully completed a one year course under the **National Sports Organisation** (NSO) IIT Bombay in Athletics and Attended **INTER IIT** camp for 100m race.   *(2019-20)*
- Achieved **5-star Rating(Yellow Coder)** in Codechef and Rating 1871(**Blue Coder**) in Codeforces   *(2020)*
- Represented Hostel 6 and secured **First Rank** from our Hostel in Inter Hostel **Logic GC**   *(2019)*
- Won **Best Athelete** Trophy twice in sub-junior and junior category in Annual Sports meet   *(2014-2016)*
- Secured **First** position in inter school Mathematics Competition by Gyan Vihar   *(2015)*
- Secured **Third** position in inter school Mathematics Competition(SMT. Pushpa Jaipuria)   *(2015)*