SARTHAK SHRIVASTAVA

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Mathematics & Computing	Indian Institute of Technology Delhi	8.00
2019	CBSE XII	New Greenfield Public Academy	92%
2017	CBSE X	Delhi Public School Guwahati	9.8

SCHOLASTIC ACHIEVEMENTS

- **Discover and Learn 1-2-3-4:** Granted funding by IRD Unit, IIT-D for a research project on autonomous machines(2019)
- **National Talent Search Examination(NTSE):** Qualified State Level conducted by CBSE. Among the top 70 in the state(2017)
- **Foreign Exchange:** Selected for semester foreign exchange after a two-tier process, among the top 80 out of 800+ students(2021)
- **Six Sigma Certification:** Awarded by Aveta Bussiness Institute in **Finance** for curriculum proficiency and excellence(2022)

INTERNSHIPS

- **Bidgely Inc, Bangalore** | Data Science Intern | *Deep Learning for EV Users Detection* (May 2022 - July 2022)
  - Accomplished migration of the current EV Detection architecture from Statistical Methods towards **Deep Neural Networks**
  - Modelled the characteristics of 9k EV Users across all geographies through exhaustive feature analysis and handled outliers
  - Designed the entire **CNN** architecture leveraging **WSOD**(Weakly Supervised Obeject Detection) with **ResNet** as backbone
  - Performed hyperparameter tuning with **Bayesian Optimization** to achieve highest accuracy(**>95%**) among all benchmarks
- **Zenduty, Bangalore** | Software Engineering Intern | *Machine Learning in Incident Response* (May 2021 - July 2021)
  - Developed an ML framework in **Django** with SQL to perform real-time **Alert Correlation and Clustering** with **98%** accuracy
  - Generated data by **Chaos Engineering** on several interlinked applications, created and deployed on a **Kubernetes** cluster
  - Developed end-to-end architecture performing unsupervised learning through **Hierarchal Clustering** on alerts stored in NoSQL

TECHNICAL SKILLS

• **Programming Languages:** Python, Java, C/C++, MATLAB, SQL, Solidity • **Tools and Frameworks:** PyTorch, Keras, TensorFlow, NLTK, NodeJS, Django, Docker, Git • **Github ID**- *g3ronimO-o* • **Relevant Courses:** Data Structures and Algorithms, Probability, Machine Learning, Computer Vision, Statistical Methods, Analysis & Design of Algorithms, Data Mining, Computer Architecture, Linear Algebra, Digital Image Processing | *Ongoing:* Operating System, Theory of Computation, Natural Language Processing

PROJECTS

- **Mobile Transformers for Depth Estimation** | *Dr. Siddharth Srivastava(CDAC)* | Research Project (Jan 2022 - Present)
  - Designing a vision **transformer encoder-decoder** network to efficiently predict real-time **dense depth** on mobile devices
  - Developed architecture for estimating **monocular** depth by leveraging **MobileFormer** as backbone with multiheaded-attention layers as encoder and leveraging the **split-concatenate shuffle block** from **MobileDepth** network as decoder
- **Chat Application** | *Prof. Huzur Saran* | Computer Networks (Oct 2021 - Nov 2021)
  - Designed **multi-threaded** server and client implementations for communication using an HTTP-like protocol over **TCP sockets**
  - Ensured end-to-end security using **RSA** public-private key encryption and message integrity via **digital signatures**
- **Dynamic Memory Allocation** | *Prof. Rahul Garg* | Data Structures and Algorithms (Sep 2020 - Oct 2020)
  - Designed a **memory allocation system** in **Java** that dynamically **fragments and defragments** memory blocks
  - Implemented Linked List, **Binary Search Tree**, and **AVL Trees** data structures to implement memory blocks using **OOPS**
  - Employed a modified variant of **'First Bit'** and of **'Best Bit'** algorithm for efficient fragmenting and **defragmenting**
- **University Database System** | *Prof. Maya Ramanth* | Database Management System (Feb 2022 - Mar 2022)
  - Developed an end-to-end website consisting of the data of universities using **Flask** and implemented search and filter features
  - Designed the databse system using **PostgresSQL** and leveraged its queries for search algorithm enabling users to use multiple filters
- **3D Vision Transformers** | *Prof. Brejesh Lall* | Research Project (May 2021 - Feb 2022)
  - Developed an architecture incorporating **Transformer Networks** for **3D Vision classification, detection,segmentation**
  - Designed a framework to use the **permutation invariant** of the point-clouds for **global feature** from **PointNet** using **T-Net** architecture and building a **ViT(Vision Transformer)** model to utilize **positional embeddings** as local features
- **Frequent Itemset Mining** | *Prof. B.S. Panda* | Data Mining (Feb, 2022)
  - Performed mining to identify frequent patterns and correlations on a retail supermarket data consisting of around 90k receipts
  - Designed a more efficient variation of **Apriopri** and **FP-Growth** algorithms which was feasible for all support threshold ranges
- **Social Network Co-Occurences Graphs** | *Prof. Rijurekha Sen* | Data Structures and Algorithms (Jan 2021)
  - Designed **social network graphs** to map the connections between different objects according to their **co-occurrences**
  - Developed **undirected weighted graphs in Java** through **adjacency map** and leveraged DFS and BFS for traversing
- **Autonomous Self Localising Robot** | *Prof. Shubhendu Bhasin* | DL1234 Project (Oct 2019 - March 2020)
  - Developed a ROS-based **self-localizing robot** for autonomous navigation using a ZED camera and object detection in Gazebo

Received funding from Industrial R&D Unit, IIT Delhi as a part of Discover and Learn 1234 project