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# Shantanu Tyagi

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## Education

**DA-IICT** **Gandhinagar, Gujarat, India** **Jul 2018 – May 2022 (Expected)**

- B.Tech (Honours) ICT with Minor CS, CPI: 8.63
- **Courses:** Data Structures, Design of Algorithms, Numerical Methods, Networking, DBMS, Optimization, Data Analysis and Visualisation, High Performance Computing, Computational Finance, Modelling and Simulation, Machine Learning, Complex Networks, Systems Software, Computer Architecture, Software Engineering, Probability, Linear Algebra.

**Green Valley High School** **Vadodara, Gujarat, India** **Jun 2016 – Apr 2018**

- Science stream, Percentage: 93.2

## Professional Experience

**Undergraduate Researcher** **DAIICT, Gandhinagar, India** **May 2021 - Sept 2021**

- I worked with my high performance computing group to develop a shared memory based parallel implementation of the standard simplex algorithm, did its empirical analysis and also studied the impact of the density of the underlying matrix on the overall performance.. The research paper got accepted in IWOMP, Bristol and was published by Springer.

**Summer Research Intern** **TSRD, West Bengal, India** **Dec 2019**

- I worked for Tagore Society for Rural Development in the tribal districts of West Bengal, India. I taught in local schools, attended Self-Help-Groups sessions, provided necessary technical support, learned their ways to tackle socio-economic backwardness among the poorest of poor.

## Languages and Technologies

- C, C++, Java, Python, Javascript, HTML, MATLAB, PostgreSQL, Processing, Latex, Markdown.
- Git, Eclipse, VS Code, Linux, TensorFlow, Selenium, Photoshop, Premiere Pro, OpenMP, Wireshark.

## Projects

- **Concept Visualisations:** Fourier Series, Starfield, Fern fractal, Sierpinski triangle and carpet, Toothpick fractal, Parallax rain, Analog clock, Lorentz Attractor, Rubiks Cube, Pong(collisions), Weierstrass function, Sorting algorithms, Conway's Game of Life, Cellular Automata rules, Double Pendulum, Spring-Mass System, 3D Random Walk, Automated Steering.
- **Games(Java):** Tic-Tac-Toe, Maze, Snake, Minesweeper, Tetris, Connect4.
- **Data Analysis and Visualisation:** Amazon order history data, COVID'19 dataset, Crpytocurrency data, Iris dataset, Olympic Medals dataset.
- **Modelling and Simulation:** Radioactive Decay, Drug Dosage, Population Growth, Innovation Spread, Epidemic Spread, Malaria, Random Walk, Heat Diffusion, Fire Spread.
- **Web Scrapping:**
  - Country-wise COVID'19 data, their flags and live global news in a GUI.
  - Django E-commerce product tracker website, automated emails with product details when product is in range.
  - GSOC organisation scrapper based on user interests and automated email with organisation details attached as CSV.
- **Banking Database:** Made an IEEE standard SRS document, noun and verb analysis, ER diagram, relational model, normalisation, DDL scripts, populating the PostgreSQL database and running various kinds of SQL queries.
- **Classification CNN:** Dog-Cat, Handwritten Digits, Fashion Apparel, Hand Gesture Brightness Control.
- **Canteen Management System:** Applied Software Engineering Requirements Elicitation techniques like Use Cases, Functional and Non-Functional requirements, Black Box Testing, Use Case Diagram, Activity Diagram, Sequence Diagram, State Diagram for an online canteen order management system.
- **Modelling Phenology:** Used satellite data and GIS tools to collect the measured phenology data indicated by NDVI and EVI and used ML to model and predict its values and explore its relation with CO2, temperature and precipitation.

## Additional Experience and Awards

- Teaching Assistant for Digital Logic Design course.
- Served as the core member of Cubing Club.
- Coordinated and Volunteered in college fests.
- Freelancing on Fiverr.