Rishabh Ranjan

3rd Year Undergraduate, Department of Electrical Engineering

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Academic Details

- **Indian Institute of Technology, Delhi** — **New Delhi**
  B.Tech. in Electrical Engineering, CGPA 8.92/10 — *2017–present*
- **Sadar Alam Memorial Secondary School** — **Bihar Sharif**
  CBSE(Class XII), 92.6% — *2017*
- **Sainik School Purulia** — **Purulia**
  CBSE(Class X), CGPA 10/10 — *2015*

Scholastic Achievements

- Secured All India Rank **404** in JEE Mains 2017 among 1.4 million students
- Secured All India Rank **1385** in JEE Advanced 2017 among 2 lakhs students selected from JEE Mains
- Kishore Vigyan Protsahan Yojana: Awarded fellowship by IISc, Bangalore after getting an All India Rank **324**
- Qualified **NTSE** Stage 1 conducted by National Council of Educational Research and Training
- Selected for **Super 30** programme which provides free fooding and coaching facilities for JEE preparation

Technical Skills

- **Programming Languages:** C/C++, Python, MATLAB/Octave, Java, Latex, SQL, Arduino, HTML, CSS, Javascript
- **Tools and Technologies:** Scikit, Tensorflow, Keras, Git, Flask, Django, Bootstrap, IBM DB2, Logisim, Simulink, Cadence

Projects

Independant Project

- **Blink Detection for Quantifying Focus Level** — Deterministic Algorithms Lab | April'20-May'20
  Analysed the efficacy of using facial landmarks and eye aspect ratio to detect and count blinks in video streams. Used dlib and OpenCV library to perform facial landmark detection which is then used to calculate eye aspect ratio and detect blinks in order to quantify focus
- **Detection of Stable Limit Cycle using Sum of Squares programming:** — Prof. Deepak U. Patil | May'19-Jan'20
  Developed a method to detect the presence of stable limit cycle for second order non-linear systems using sum of squares and successfully tested the approach on various examples by a MATLAB program written using sum of squares toolbox
- **Image Matting:** — Prof. Tapan K. Gandhi | Dec'18-Jan'19
  Analysed different techniques to extract foreground object from an image using various datasets from *alphamatting.com*. Techniques which were tested are Blue Screen Matting, Closed Form Matting, KNN Matting, Non Local Matting, CNN Matting and Guided Filter

Course Projects

- **Five Stage SimpleRisc Processor on Logisim :** — Prof. Smruti R. Sarangi | Nov'19
  Designed a pipelined processor with five stages having ALU, Control Unit, Memory, Register File on Logisim to run SimpleRisc instructions. Implemented interlocks and forwarding unit to take care of control and load use hazards and ran various simulations
- **Web Search Engine:** — Prof. Amitabha Bagchi | Oct'18
  Developed a versatile search engine based on inverted index of webpages using Hashmaps and AVL Trees. A scoring function based on term and inverse document frequency was used to rank the webpages in order of their relevance
- **Mobile Phone Tracking System:** — Prof. Amitabha Bagchi | Oct'18
  Used a tree data structure to implement a central server which consisted of exchange nodes at different levels containing mobile phones to handle queries like finding a phone, establishing a connection with it, changing it's location etc
- **Music Recognition Application:** — Prof. Abhishek Dixit | Oct'18-Nov'18
  Developed an application to identify a short clip of music captured through a microphone out of a small database of songs

Relevant Courses

Data Structures and Algorithms, Machine Intelligence and Learning, Deep Learning Specialization*, Databases and SQL for Data Science*, Computer Architecture, Signals and Systems, Digital Electronics, Probability and Stochastic Process, Calculus, Linear Algebra and Differential Equations, Analog Electronics, Power Electronics, Communication Engineering, Circuit Theory, Control Engineering

**Online on Coursera*