Prabhsimrandeep singh

3rd Year Undergraduate
Department of Electrical Engineering

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2015 - Present	B.Tech	Indian Institute of Technology, Kanpur	9.8/10
2015	CBSE(XII)	Khalsa College Public School, Amritsar	92.8%
2013	ICSE(X)	Sacred Heart Convent School, Punga	94%

Scholastic Achievements

- Secured **All India Rank 1168** in **JEE Advanced 2015** among the 1.2 Lakh shortlisted candidates.
- Received the **Academic Excellence Award** for exceptional academic performance in 2015-16 academic session.
- Among the top 0.3% of the 1.5 million applicants in JEE Mains 2015.
- Secured **Rank 1** in "Super 50" Entrance Exam conducted by Khalsa College Public School and **Government of Punjab**.
- Received a research grant for a three months long project under the **Summer Under-graduate Research and Graduate Excellence (SURGE'17)** programme at IIT Kanpur.

Key Projects

- **Short term Traffic Prediction Using DTC**   (*Mar'17- Ongoing*)
  Mentor: Prof. Ketan Rajawat, Department of Electrical Engineering.
    - Implemented matrix completion via rank minimization using the **SVT (Singular Value Threshold)** algorithm.
    - Successfully implemented the **Dynamic Tensor Completion(DTC)** algorithm. It was designed in such a way so as to utilize the multimode information to forecast traffic data while maintaining the low rank constraint.
    - Collected Traffic data from PeMS and structured it into a 4-D tensor.Ran DTC on this tensor to obtain the MAE(Mean Absolute Error) close to 10. Our Future intent is to design a fast online algorithm for predicting Real time Traffic data.
- **TV Denoising of Signals with Poisson Distribution**   (*May'17-Ongoing*)
  Mentor: Prof. Ivan Selesnick, Department of Electrical Engineering, New York University.
    - Learned and worked on problems related to **Sparse regularization** and **Total variation(TV)**.
    - Analyzed the differences b/w the Poisson noise and the Gaussian noise. Determined the problems with the Poisson noise like the dependence of variance on the input signal, presence of log(x) in the fidelity term etc.
    - Implemented the total variation Denoising (TVD) algorithm for Poisson noise using alternating direction method of multipliers (ADMM). Our target is to propose a non-convex penalty(more sparse than l_1 norm) for the objective function.
- **Development Intern, RTE internship, IIT Kanpur**   (*May'17- July'17*)
    * **Improve Phabricator-Jenkins integration** : Show summary of compiler errors in the Jenkins comment on Phabricator.
    * **Fix automatic version bump setup** : Bump the version number automatically . Depending on the command ,it will bump the Major/ Minor/Patch accordingly before publishing the app.

Technical Skills

- **Programming Languages:** C, C++, HTML, LaTeX, MATLAB, Python, Java
- **Software and Libraries:** GNU Octave, Git, Micro-Cap , Tensor Toolbox, Jenkins, Phabricator

Positions of Responsibility

- **Student Guide, Counselling Service Team**   (*2016-17*)
    - Guided and mentored **6 freshmen** students in acclimatizing to the Environment of the Institute.
    - Helped them with their academics by arranging meetings with their mentors and still maintain a good rapport with them.
    - Coordinated with the Counselling Service and helped in the organisation of **Orientation Programme 2016**.
- **Volunteer, Student Placement Office**   (*Nov'16-Dec'16*)
    - Managed logistics of shortlisting tests, interviews for the recruiting process.
    - Handled recruitment process of companies like Tower Research, IBM ,Edelweiss etc.

Relevant Courses

Data Structure and Algorithms	Signal, Systems and Networks
Fundamentals of Computing	Linear algebra and Differential Equations
Introduction to Electronics	Microelectronics
Probability and Statistics	Introduction to Economics
Machine Learning, Coursera,Stanford university	Control systems analysis
Digital Electronics and Microprocessor Technology*(ongoing)	Principles of Communication*(ongoing)

Extra-Curricular Activities

- Won in Volleyball event during Intramurals'15 at IIT Kanpur.
- Part of the Runner up volleyball Team in Inferno'15, an inter-hall sports event.
- Participated in Electromania in **Takneek'15**, the intra-IITK Science and Technology Championship.