ADITYA JAIN

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EDUCATIONAL QUALIFICATIONS

Year	Degree/Certificate	Institute/School	CPI/%
2015	B.Tech/ Electrical Engineering	Indian Institute of Technology Kanpur	**9.1/10.0**
2011	Class XII - CBSE	Cambridge International, Indore	91.2%
2009	Class X - CBSE	Vidyasagar School, Indore	90.6%

SCHOLASTIC ACHIEVEMENTS

Olympiads / National Exams	• **AIR-340** in **IIT-JEE'11** out of more than 5 lakhs students. • **AIR-50**, **State Rank-2 and City Topper** in **AIEEE'11** out of 11 lakhs students. • One of the**Top-5 students** of State (M.P.) in **Regional Mathematics Olympiad**. • In **Top-300 students** of India in **Indian National Physics and Chemistry Olympiad '11** by **IAPT**.
Fellowships	•Conferred with **Kishore Vaigyanik Protsahan Yojna**(KVPY'11) fellowship, initiative by **IISc Banglore and Indian Gov**. • Awarded **Merit Cum Means** and **Student Benevolent Fund Scholarship** by IIT Kanpur for maintaining consistent excellent academic performance amongst class of 800 students.
Others	• Awarded **0.1 % student certificate** by CBSE for securing **100% marks** in **Mathematics**(XII) and **Social Science**(X) • **AIR-24** after 2nd level of **National Science Olympiad** conducted by SOF. • **State Topper** in 2nd **UCMAS Abacus and Mental Arithmetic Competition**.

PROJECTS

Pattern Recognition: Machine Fault Diagnosis (Sponsored by BOEING Company, Chicago, USA) - *May'13 – July'13*

- Designed and developed a **fault diagnosis and classification system** for air compressors. Project is of direct **industrial use** as it can be used directly in any machine having Acoustic and Vibration variation.
- Built an information theoretic framework to determine the suitability of any data instance for training.
- Explored and experimented with a set of global features and built a classifier to discriminate between four different states of the machine and formulated a novel **Voting at Feature level** based approach to build a new classification system.
- **Pattern Recognition Techniques** were used for classification and all the work was done in MATLAB.
- Writing **Research Paper** for **Academic Journals** titled **"Voting at Feature Level for Machine Fault Diagnosis".**

Machine Learning: Supervised Dictionary Learning using Convex Optimization Techniques *July'13 – present*

- Project focuses on *learning* the basis set, also called **dictionary,** to adapt it to specific data, an approach that has recently proven to be very effective for signal reconstruction and classification in the audio and image processing domains.
- Aim to propose a new **optimization algorithm** for dictionary learning, based on **stochastic approximations**, which scale up gracefully to large datasets with millions of training samples.
- To present proof of convergence along with experiments with natural images demonstrating that it leads to faster performance and better dictionaries than classical batch algorithms for both small and large datasets.

FPGA: Gaussian Random Generator in VERILOG. *January 2013*

- Implemented Gaussian Random Generator in Verilog such that parameters of the Gaussian distribution can be reconfigured.
- Project was motivated by ongoing advances in **communications relating to channel codes** and in particular by the development of new generations of channel codes that operate on very long (thousands to tens of thousands of bits each) blocks of data.
- Developed a well **optimized hardware implementation** of simulating large blocks of data with faster speed than software model.
- Generator has large applications in systems with large simulations using Gaussian noise. These include financial modeling, simulation of economic systems and molecular dynamics simulations.

MANUFACTURING PROCESS PROJECTS *2012-2013*

- Built working model of MAZE game using Joystick. Involved the use of lathe, milling, drilling, casting and welding for gear manufacture and assembly.
- Certificate of Appreciation was awarded for novel design of the model.

RELEVANT COURSES

Fundamentals of Computing	Data Structure and Algorithms	Probability and Statistics
Introduction to Logic	Signal System's and Networks	Introduction to Electronics
Digital Signal Processing	Principles of Communication	Microelectronics

TECHNICAL SKILLS

- **Languages** : C, C++, HTML, CSS, JavaScript.
- **Other tools** : MATLAB, GNU Octave, Verilog, Microcap, Eclipse, Adobe Photoshop, Microsoft Office

POSITIONS OF RESPONSIBILITY

Pitching Coordinator, Student's Placement Office, IIT Kanpur *(2013 – present)*

- Heading a **3-tier team** responsible for scheduling and carrying out the **Internship/Placement procedure** of 2011 and 2010 batch.
- Responsible for developing contacts and maintaining **relations with company officials**
- Helping the **preparation** of batch mates by organizing various **sessions** regarding internships with the help of seniors

Fellow Search Coordinator, Avanti Fellow's *(2012)*

- **Avanti Fellows** provides **low-income high-school** students a world-class **science** and mathematics education.
- Worked with team of 10 members to manage the whole selection procedure of potential candidate for the fellowship.
- Strategized and conducted **school and community outreach** (career awareness sessions , school visits to invite applications for the fellowship, community organizations, media bodies, etc.).

Link Student , Counseling Service, IIT Kanpur *(2013 – present)*

- Mentoring 3 academically weak students and provide them academic tutoring on one to one basis.
- Motivating and encouraging the students to do better in academics, and assessed any additional difficulties, personal or emotional, that the student may be facing.

Student Guide, Counseling Service, IIT Kanpur

- Mentored 9 freshmen personally to help them acclimatize to the new environment at IIT Kanpur
- Helped the junior batch at **academic, psychological and emotional** level

EXTRA CURRICULAR ACTIVITIES

- Participated in **IEEE Computational Intelligence Society (CIS)** workshop held at IIT Kanpur – July 2013.
- Part of Organizing Team of **Quality Improvement Program on Intelligent Informatics** held at IIT Kanpur – July 2013.
- **Vice Captain** (Vidyasagar School) – Took key decisions in student council and represented school at various occasions.
- Member of Society of Automotive Engineers (SAE) **– India**, the engineering society for advancing mobility.
- Congo Player – Performed on several occasions at school and college level like Fresher's Night and Hall day.
- Served as a cadet of **National Cadet Corps (NCC), IIT Kanpur** in the year 2011-12.
- Represented School for 3 years (8^{th}-10^{th}) in Inter School Eicher Skyline Quiz at State Level.