

EDUCATION

- (2013 - 2015) - M. Tech., Computer Science and Engineering, **Indian Institute of Technology Kanpur** - 9.43 / 10
- (2007 - 2012) - M. Sc. (Integrated), Physics, **Indian Institute of Technology Kanpur** - 6.50 / 10
- (2006 - 2007) - 12th Grade (Science), **Kendriya Vidyalaya Ganeshkhind, Pune, India** - 89.2 %
- (2004 - 2005) - 10th Grade, **The Bishop's School, Pune, India** - 93.4 %

ACHIEVEMENTS

- Secured **1st place** in **Yahoo! Hack-U 2013** in a solo team.
- Secured an Asia-Pacific rank of **51** in the **Google APAC 2015** University Graduates Test.
- Runner up in **Microsoft Code.Fun.Do 2015**. Created an educational reference app to teach history.
- Secured an **All India Rank of 1161** in **Joint Entrance Examination (IIT-JEE) 2007** with more than 600, 000 examinees.
- Secured **2nd place** in the **Collegiate Cyber Threat Competition**, 2012 organized by **Deloitte**.
- Secured **4th place** in **Chakravyuh, National Ethical Hacking Competition**, organized by **Kyrion**.
- Officially recognized as having **99+ percentile** in the IQ test conducted by **MENSA India**. Life-member.

RESEARCH PAPERS

- Sinha, R., Gaurav, K., **Chandra, S.**, & Tandon, S. K. (2013). Exploring the channel connectivity structure of the August 2008 avulsion belt of the Kosi River, India: Application to flood risk assessment. *Geology*, 41(10), 1099-1102

KEY RESEARCH PROJECTS

[Creating a tool to Analyze Rivers, Dr. Patrice Carbonneau, Durham University, UK] Apr 2011 — Jul 2013

- Worked on "**Sustainable Management of the Ganga Basin**" through UKIERI, sponsored by the **British Council**.
- Created a general-purpose tool in MATLAB to **analyze river trajectories**, and **estimate the pollution** at every point.
- This tool **converts raw satellite images into river network structure**, using **image processing** and network analysis.
- It uses graph-analysis tools to **calculate macro-properties** of the river network structure.
- The second phase of this project uses population density and land-use data to **estimate the amount of pollution** entering into the river at every point to see the **effect of pollution sources** and/or physical obstructions on its ecology.
- **Applications:** Making **environmentally-sustainable** decisions on river-bank construction; Analyzing and minimizing the effect of pollution on **river ecology**.

[Classification of Yahoo! Voices articles on bias in content, Dr. Arnab Bhattacharya] Jan 2014 — May 2014

- **Awarded first place** in Yahoo! Hack-U 2013. **Improved the results** in a semester-long independent-study.
- The detection of **article bias** is a much **more daunting topic** than the detection of article content.
- **Evaluated a list of attributes** relevant to detecting article bias, and clustered the articles on the basis of that information using k-means and hierarchical clustering techniques.
- **Optimized the clustering algorithm** by getting rid of outliers and predicting **the optimal number of clusters**.
- **Applications:** Massively **improving search engine results** and **ease of use**; Move Internet towards **Semantic Web**.

[Analyzing avulsion path taken by the flooding of River Kosi, Dr. Rajiv Sinha] Dec 2011 — Aug 2012

- Published in **Geology**, the #1 ranked peer-reviewed geology journal: *Geology*, 41(10), 1099-1102; doi: 10.1130/G34539.1
- The River Kosi, in Bihar, flooded in 2008 affecting the lives of 2.7 million people.
- Developed a software to **predict the probable path** of a river at avulsion, using slope, wet/dry channel information.
- **Validated results** using 2008 floods; **Predicted flood path** from a potential failure point (detected using structural analysis)
- **Applications:** Can **predict the path** taken by a **flooding river**, potentially **saving countless lives**.

[Document Classification, M. Tech. Thesis, Dr. Amitabha Mukerjee] Jan 2014 — present

- Developing a **language-agnostic** technique to **cluster documents and articles** on the basis of their content.
- Using a semi-supervised **Neural Network** and **Deep Learning** approach to map words to an N-dimensional vector space.
- Will test on English and Hindi articles to compare the efficiency of the approach with state-of-the art methodologies.

[Product Feature Extraction and Ranking, Course Project, Dr. Amitabha Mukerjee] Jul 2013 — Nov 2013

- Used online product reviews to detect product features, and the user sentiments in an **unsupervised manner**.
- Improved on the cutting-edge **double-propagation algorithm**, making it faster and enhancing precision of the result.
- **Applications:** **Automatically detecting product features** and **classifying reviews** to give structured feedback to Online Retail websites; Providing product feedback to sellers based on actual user experiences.

[Fraud Detection using Data Mining, Course Project, Dr. Arnab Bhattacharya] Sep 2011 — Nov 2011

- Predicted whether a vehicle is a 'kick' (bad buy) or not using **Supervised Analysis** techniques.
- Implemented a Meta-Learning algorithm, **Stacked Generalization**, to improve accuracy of results.
- Ranked **44th** out of 350 teams on *Don't Get Kicked* competition, organized by **Kaggle**.

[Improving the Parser - Machine Translation of Indian Languages, Dr. Rajeev Sangal] May 2009 — Jul 2009

- The parser is a part of a **natural language processing** toolkit, that makes a dependency tree for a given sentence, connecting related word-chunks together on the basis of their grammatical relations.
- The tree can be translated into any other language, and the sentence can be re-formed in the target language.
- Worked with parsed sentences in **Hindi** being translating into English, at **IIT - Hyderabad**.
- Enhanced efficiency of parser by **selecting the most appropriate parse** from a set of dependency trees. Accuracy of 70%.

[Quantum Computing Summer School and Project, Dr. Anil Kumar] May 2011 — Jun 2011

- **Learnt key concepts** related to **quantum computing** like Nuclear Magnetic Resonance, Ion Traps, and Quantum Dots.
- **Built a pulse sequence** for an end-bit controlled **Quantum Toffoli Gate** using Nearest Neighbour interactions.
- **Demonstrated** this pulse sequence on an NMR setup at **Indian Institute of Science, Bangalore**.

[Tracking Sports Players through Video, Course Project, Dr. Vinay Namboodiri] Jan 2014 — May 2014

- Implemented the state-of-the-art **Deformable Part Model**, and the **Stanford Approach** of flow diagrams.
- Implemented our own adaptation, using **background-subtraction** to detect moving objects, and **positively identifying the players** using **HoG**.
- Successfully detected and reported **every event of occlusion** and dealt with it using player histogram information.

[Association for Computing Activities, Project Mentor for 3 teams] Jan 2014 — May 2014

- **Mentored three teams** of four students each on **two projects** related to computer science applications.
- The project topics were:
 - 1) Making a map of where real-time news stories are taking place - **Taught API usage, web development, integration**.
 - 2) Developing and implementing a new language for programming AI-robots - **Taught syntax, parsing, interpreters**.

TECHNICAL SKILLS

- **Programming Languages** : Python, MATLAB, C, C++, Julia
- **Web Development** : Javascript, PHP, jQuery
- **Frameworks** : Bootstrap, Django, Flask, CakePHP
- **Data Mining Tools** : Weka, Scikit, nltk
- **Other Libraries** : Scipy, OpenCV
- **Other** : MySQL, SQLite, LaTeX, Git, Bash

RELEVANT COURSES

- Introduction to Machine Learning
- Data Mining
- Data Structures and Algorithms
- Computer Vision and Image Processing
- Natural Language Processing
- Advanced Algorithms
- Quantum Computing
- Computer System Security
- Operating Systems

POSITIONS OF RESPONSIBILITY

[Overall Coordinator, Students' Placement Office, IIT Kanpur] Mar 2014 — present

- **Leadership**: Leading a 4-tier team of 200 members to facilitate placement of 1,113 students of the graduating batch. Constituted and spearheaded an internship team to manage the internship process of 680 students.
- **Initiatives**: Revamped and debugged the company Content Management System, and the Job Application Portal. Enhanced the preparation process - Invited British Council for placement preparation.
- **Achievements**: Improved Alumni-Student relations, and student awareness using Career Awareness Workshops. Achieved 14% growth in number of international companies - confirmed first-time recruiters like Samsung Korea.

[Student Representative, Senate Post-Graduate Committee, IIT Kanpur] May 2014 — present

- Nominated by the Students' Senate to represent the entire Post-Graduate community.
- Actively involved in representing students with genuine reasons for a low academic performance in termination hearings.

[Coordinator and Founder, Card and Board Games Society, IIT Kanpur] Jul 2012 — May 2014

- Established the Card and Board games hobby group at IIT Kanpur and successfully coordinated it for a second year.
- Increased participation in the club by 100% by conducting campus-wide tournaments and regular meetings.

[Coordinator, English Literary Society, IIT Kanpur] Jul 2009 — May 2010

- Massively enhanced popularity of club via Hall-Level workshops to bring about more than 50% increase in participation.
- Revamped the format of the Treasure Hunt - engendered participation of over 450 first-year students.

WORK EXPERIENCE AND TEACHING ASSISTANTSHIP

- Project Associate, Civil Engineering and Chemical Engineering, IIT Kanpur Feb 2013 — Jul 2013
- Teaching Assistant, IIT Kanpur Aug 2013 — Dec 2014
 - › **CS252** : Helped students set up web, email, DNS, LDAP servers in a secure way.
 - › **ESC101** : Helped teach students the basics of computer programming using C and Java.

ACTIVITIES

- **Volunteer**, Prayas, a not-for-profit organization that teaches underprivileged children living near IIT Kanpur.