

KARTIK RAJ

Department of Computer Science and Engineering

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ACADEMIC DETAILS

Degree/Examination	Year	Institute/School	Board	CGPA/%
B.Tech	2014-present	IIT Kanpur		8.5/10
Senior Secondary School Exam(XII)	2014	Munam Public School	CBSE	94.2%
Secondary School Exam(X)	2012	St. Xavier's School	CBSE	10/10

SCHOLASTIC ACHIEVEMENTS

- Obtained **All India Rank 130** in the JEE Advance 2014 among 2,00,000 students
- Achieved **99.88 percentile** in JEE Mains Examination 2014 among 13,50,000 students

INTERNSHIPS

- **Software Developer, Microsoft (R&D) Pvt. Ltd, Bengaluru**
Project Title: The Great Eye, Mentor: Raghavendra Malleswara (May '17- July '17)
 - Designed an operations dashboard which acts as a central place to track the health of all the services for each of the tenant, **saving 10 manhours/week** on querying
 - Designed 3-tier component built on a **scalable infra**, feeding queries to which autogenerates the components
 - Coordinated with service teams to develop a platform that shows the KPIs relevant to their service
 - Provided drilldown capabilities into services and orgs along with *Timerings*, through which one can drilldown to a period of time to further understand the co-relation of KPIs and other metrics

MAJOR PROJECTS

- **Open source ETE development** (Dec '15-Mar '16)
 - Developed the searching capabilities in ETE tree structures. Developed parsers to interpret the pattern to be searched, implemented algorithm & proposed performance improvement ideas. Submitted a 16-page proposal for the same
 Proposal:-<https://github.com/kartikr/code-bank/blob/master/proposal.pdf>
 - Demonstrated an idea to parallelise the pattern searching in trees, **reducing effective search time by a factor of 900**
 - Studied/contributed to few other organisations namely networkx, sympy, numpy, and scikit
- **Tiny C compiler** (Guide: Prof. Amey Karkare) (Jan '17-Apr '17)
 - Implemented scanner and parser which makes various semantic checks and finally generates the 3-address code
 - Used 3-address code to generate MIPS assembly code taking many **run-time optimizations** into account
 - Generated code handled recursion, complicated large expressions, structures and more
- **Zero Shot Learning** (Guide: Prof. Piyush Rai) (Sept '16-Nov '16)
 - Implemented **Semantic Output Code Classifier** to predict unseen words from their fMRI brain images with **71% accuracy**
 - Studied constructing word representations via global context & multiple word prototypes, and other ZSL techniques
- **Resume verification system** (Guide: Prof. Piyush Kurur) (Sept '16-Nov '16)
 - Designed a webapp to automate resume verification process at IITK
 - Added functionality allowing one to auto-generate resumes in PDF format using various latex templates after verification
- **Markov chains and Hidden Markov Models** (Guide: Prof. Rajat Mittal) (Oct '15-Nov '15)
 - Studied Markov chains and designed codes for 3 algorithms in HMMs namely Front, Back and the Viterbi Algorithm
 - Analysed the consequences of these models in Speech Recognition

TECHNICAL SKILLS

- **Languages** | C, Python, C++, Assembly, Verilog
- **Web Technologies & Tools** | MATLAB, AngularJS, HTML, CSS, PHP, MySQL, git, Django, L^AT_EX, Bash, Octave, Gnuplot

POSITIONS OF RESPONSIBILITY

- **Academic Mentor(MTH 101/MTH 102)** (May '15-July '16)
 - Took hall/institute level remedial classes to solve problems faced by academically weaker students in Mathematics
- **Student Guide** (July '15-July '16)
 - Guided a group of 4 first year students and helped in organizing a 6-day Orientation Program for UG Batch'15

EXTRA CURRICULAR

- **NCC:-** Received Cadet training at 2-UP CTR which involved various physical, mental and social activities
- **Cultural:-** Performed in Dance Extravaganza'15 which is the annual Dance Showcase of Dance Club,IITK