

Abhishek Mohta

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Education

- 2018-2020 **M.S. in Computer Science**, *Carnegie Mellon University - School of Computer Science*, PA, USA.
- 2012-2017 **M.Sc. Economics, B.E. Computer Science**, *BITS Pilani*, Goa, India, 9.41/10.
- Merit Scholar 8/10 semesters (top 2% of batch of ~600 students)
- 2011-2012 **Grade 12 CBSE**, *Birla High School*, Kolkata, India, 97/100.
- City Rank 1, Science Stream, Kolkata, India (out of ~30,000 students)

Patents and Publications

- 2017 **Neural-Guided Deductive Search for Real-Time Program Synthesis from Examples**, (*Accepted*).
International Conference on Learning Representations (ICLR), 2018 [Link]
Patent filed
Abhishek Mohta*, Ashwin Kalyan*, Oleksandr Polozov, Dhruv Batra, Sumit Gulwani, Prateek Jain

Research Experience / Internships

- July 2017-
July 2018 **Research Fellow**, *Microsoft Research India*, Bangalore, India.
Selected among 24 from over 1000 applications
Guide: Dr. Prateek Jain, Senior Researcher, Microsoft Research India
Enhancing the Program Synthesis by Examples (PROSE) framework with machine learnt models replacing hand-written heuristics. Implemented NGDS - a hybrid technique that combines symbolic logic techniques and statistical models - based on LSTMs in CNTK to prune unnecessary branches in the synthesis process - leading to performance improvement of >75% over PROSE and RobustFill. Paper published at ICLR, 2018 and patent filed.
- January-
June 2017 **Research Intern, Applied Sciences**, *Microsoft Research India*, Bangalore, India.
Guide: Dr. Rahul Kumar, Principal RSDE, Microsoft Research Redmond
Link to Github: <https://github.com/abhimohta/Static-Module-Verifier>
Enabled Whole Program Analysis as a service - built a scalable and reliable end-to-end system to statically analyze code and find bugs leveraging Static Module Verifier (SMV). The tool successfully ran on the entire Windows drivers code base and found 350+ bugs - null pointers and use-after-free.
- July-
December 2016 **Software Engineering Intern**, *Amazon Development Centre*, Bangalore, India.
Team: Retail Business Systems Tech
Improved the Automated Content Correction and Validation engine based on n-gram models. Additionally, implemented the infrastructure for a feedback system to reduce manual intervention for data validation using AWS Tools.
- May-July
2016 **Summer Intern**, *Microsoft India Development Center*, Hyderabad, India.
Team: STCI (Bing)
Implemented a classifier to find new/missing restaurants in the Bing database leveraging user query logs, achieving an accuracy of over 90%.
- May-July
2015 **Intern, Strategy and Operations**, *KPMG*, Bangalore, India.
Supported the team working with a leading apparel brand in research and analysis of Fashion & apparel e-commerce startups. Automated a large number of redundant tasks using Excel macros.
- May-July
2014 **Intern**, *Indian Institute of Remote Sensing, ISRO*, Dehradun, India.
Implemented a tool to process satellite images and open-sourced the commonly used remote sensing software ERDAS. As a part of the project, we implemented several machine learning algorithms - SVM, K-means, etc. using which we were trying to build the various features of the software like vegetation mapping and cloud cover.

Projects

- May – August 2018 **Implemented the malloc/calloc/free function, a proxy server with cache, a linux shell (tsh-tiny shell) and a generic cache simulator from scratch, Code available on request.**
- March – May 2016 **Clustering closely-related terrorist attacks leveraging the Global Terrorism database.**
Mined the data in the Global Terrorism database and analysed it using optimized K-means algorithm. Clusters based on location, casualties, target group, type of attack were created, which closely resembled the ground truth.
Tools: Hadoop and Java
- 2013-2016 **Designed a VLIW pipelined processor for a given set of instructions.**
Designed a Write Through, FIFO, Way prediction cache of 512B with associativity 2.
Designed a microprocessor based flour packing machine on Proteus in assembly language.
Developed a stand-alone mess management software in Java using JDBC and MySQL.,
Please find the source code for all of the above at <https://github.com/abhimohta/>.

Technical Initiatives

- June 2017 **Development of web portal to computerize management of manufacturing firm.**
Initiative taken to help father in his business - built a reliable and scalable web portal handling the management of over 10 factories.
- March 2015 – June 2017 **Co-Founder, Xinger - a fully automated online food ordering portal.**
Initiative taken to solve a crisis on-campus and eventually expanding to entire of Goa. Developed the complete portal in a short span of 2 days and negotiated and closed deals with over 20 restaurants. The startup had a client base of over 7000 and generated over \$25,000 revenue in the 2 years of operation.
- January – May 2016 **Development of the BITS Pilani Goa main gate security system.**
Handled the complete end-to-end architecture and development of the security system. Handles the security of over 3,000 students, staff and faculty on campus.
Tools for Web Development projects: HTML, CSS, PHP, JavaScript, MySQL
Please find the source code for all of the above at <https://github.com/abhimohta/>

Skill set

- Languages C, C#, Java, Python, HTML, CSS, PHP, JavaScript, MySQL
- Tools Git, Powershell, Eclipse IDE, Visual Studio, Azure, AWS Tools - S3, DynamoDB, Lambda, Kinesis
- Frameworks CNTK, PyTorch, Hadoop, JDBC, Spring, Guice, XML, JSON, Mockito
- Courses Introduction to Machine Learning(10-601)*, Introduction to Deep Learning(11-785)*, Distributed Systems(15-640)*, Probability and Mathematical Statistics(36-700)*, Introduction to Computer Systems(15-513), Data Mining, Software Engineering, Data Storage Tech. and Networks, Operating Systems, Design and Analysis of Algorithms, Data Structures and Algorithms, Database Systems, Multivariable Calculus, Linear Algebra

International Experience

- August 2013 **Delegate, Harvard Project for Asian and International Relations Asia Conference - Dubai.**
Selected among 500 delegates from across the world by Harvard University to discuss and debate on existing global issues at its Asia conference held in Dubai.
- June – July 2010 **Indian representative at PASCH Project, Germany.**
Part of the 16-member Indian squad awarded full scholarship by the German embassy for a 20-day youth camp. Completed the A1 and A2 course in Deutsch.

Positions of Responsibility / Extra-curricular activities

- April 2014 - **Convener, Waves 2014, Annual cultural festival, BITS Pilani, Goa.**
- March 2015 Headed a committee of 300 students to organize Waves with a budget of \$150,000 and open to over 100,000 students in India. Delegated work to various teams and coordinated the entire proceedings of the festival - events, professional nights, sponsorship, PR, security, media. Procured highest ever sponsorship of \$55,000 and recorded highest participation in the festival.
- 2010-2017 **Regular debater, Master of Ceremony and Model United Nations delegate.**