Abhishek Mohta

Masters in Computer Science Applicant - Fall 2018
19, Garcha First Lane, Kolkata, India
Website: abhimohta.github.io
☏ *+91-9831415659*
✉ *mohta.abhishek94@gmail.com*

Research Interests

Artificial Intelligence, Systems, Applied Sciences

Education

2012–2017 **M.Sc. Economics, B.E. Computer Science**, *BITS Pilani*, Goa, *9.41/10*.
- Merit Scholar 8/10 semesters (top 2% of batch of ∼600 students)
- Rank: Dual Degree - 2/∼200 students, Computer Science - 5/∼122 students [Computed using 9.41/10]
- Computer Science Major GPA - 9.67/10 (self-calculated)

2011–2012 **Grade 12 CBSE**, *Birla High School*, Kolkata, *97/100*.
- City Rank 1, Science Stream, Kolkata (out of ∼30,000 students)
- Awarded National Award and scholarships worth $1,000
- Highest scores in school in Mathematics (100/100) and Computer Science (99/100)

2009–2010 **Grade 10 CBSE**, *Birla High School*, Kolkata, *9.8/10*.

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–Present **Research Fellow, Machine Learning**, *Microsoft Research India*, Bangalore.
Selected among 24 from over 1000 applications
Guide: Dr. Prateek Jain, Researcher, Microsoft Research India
Enhancing the Program Synthesis by Examples (PROSE) framework with machine learnt models replacing hand-written heuristics. Successfully implemented a Deep Learning model using LSTMs in CNTK/PyTorch to prune unnecessary branches in the synthesis process – leading to performance improvement of over 50% over PROSE and RobustFill. Paper published at ICLR, 2018 and patent filed.

January–June 2017 **Research Intern, Applied Sciences**, *Microsoft Research India*, Bangalore.
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.
Team: Retail Business Systems Tech
Improved the Automated Content Correction and Validation engine using n-gram based ML models. Additionally, implemented the infrastructure for a feedback system to reduce manual intervention using AWS Tools.

May–July 2016 **Machine Learning Intern**, *Microsoft India Development Center*, Hyderabad.
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**, *KPMG*, Bangalore.
Team: Strategy and Operations
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.
	Implemented a tool to process satellite images and open-sourced the commonly used remote sensing software ERDAS. As a part of the project, I 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

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	Data Mining (Rank 2), Software Engineering (Rank 1), Data Storage Tech. and Networks (Rank 2), Compiler Design (Rank 1), Principles of Programming Languages (Rank 2), Operating Systems, Design and Analysis of Algorithms, Data Structures and Algorithms, Database Systems, Computer Networks, Logic in Computer Science, Probability and Statistics, 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 - March 2015	**Convener, Waves 2014**, *Annual cultural festival, BITS Pilani, Goa*.
	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**.