## Abhijeet Awasthi


**Contact Information**

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**Research Interests**

Continual Learning, Lifelong Learning, Transfer Learning, Multi-task Learning

**Education**

**Indian Institute of Technology Bombay, India** **July 2017 - Present**
*Degree:* Ph.D. in Computer Science and Engineering *CPI:* 9.43/10
*Advisor:* Prof. Sunita Sarawagi

**Indian Institute of Technology Kharagpur, India** **July 2012 - May 2016**
*Degree:* B.Tech. in Electronics and Electrical Communication Engineering *CGPA:* 8.72/10
*Advisor:* Prof. Goutam Saha

**Daisy Dales School, Indore, India** **2011 - 2012**
*Certificate:* All India Senior School Certificate Examination *Percentage:* 90.4

**New Digamber Public School, Indore, India** **2009 - 2010**
*Certificate:* All India Secondary School Examination *CGPA:* 9.80/10

**Experience**

**Samsung Research Institute, Noida** **July 2016 - July 2017**
*Position:* Engineer, GPS and Sensors team

**Wipro Technologies, Bengaluru** **May 2015 - July 2015**
*Position:* Intern, Product Engineering Services divison

**Current Research Projects**

**Seminar on Continual Machine Learning:** Conducting a literature survey on existing methods to build machine learning models which can learn continuously over time across varying domains, as a part of Ph.D. Seminar course at IIT Bombay.

**Grammatical Error Correction:** Searching for ways to build machine learning models for grammatical error correction where new rules can be augmented in an incremental manner without re-training the model from scratch.

**Lifelong Sentence Classification:** Learning to classify sentences with growing set of sentence categories. Learning to discover and adopt new categories efficiently.

**Tackling Catastrophic Forgetting in Neural Networks:** Catastrophic forgetting in neural networks pose a major hurdle in the direction of continual learning. As a part of project in Foundations of Machine Learning course, I read several papers on this topic and implemented a few of them for experimentation and gaining new insights.

**Past Research Projects**

**B.Tech. Project** **July 2015 - May 2016**
*Title:* **Constructive learning algorithms to provide optimal neural network topology**.
Studied algorithms which grow a neural network as a part of training routine. Investigated the problem of over-fitting in Cascade Correlation neural networks, which begin with only input and output layers and learn the architecture as a part of training routine. Proposed a heuristic which led to convergence with lesser number of hidden units and better generalization over some toy datasets as compared to the original algorithm.

## Coursework

- **Machine Learning**: Foundations of Machine Learning, Advanced Machine Learning
- **Mathematics**: Convex Optimization, Matrix Algebra, Probability and Stochastic Processes
- **Computer Science**: Design and Analysis of Algorithms, Discrete Structures, Data Structures and Object Representation, Database Management Systems, Advanced Operating System Design
- **Signal Processing**: Digital Image Processing, Digital Signal Processing

## Programming Skills

- **Languages**: Python, C, C++
- **Libraries**: TensorFlow, NLTK, NumPy, Pandas
- **Tools**: LaTeX, MATLAB, Android Studio

## Honors and Awards

- Pre-Placement Offer from Wipro Technologies in recognition of outstanding performance during summer internship in 2015.
- Placement offers from Samsung Research Institute Noida and Synopsys India Pvt. Ltd. during final year at IIT Kharagpur.
- Merit-Cum-Means (MCM) scholarship in all the semesters at IIT Kharagpur.
- All India Rank 691 in first attempt among approximately 0.50 million students in IIT-Joint Entrance Examination, 2012.
- All India Rank 1600 and Madhya Pradesh State Rank 85 in first attempt among approximately 1 million students in All India Engineering Entrance Examination, 2012.

## Hobby Projects

**Autonomous Robotics** Spring 2014

Our robot qualified for the final round of Tremors, an autonomous robotics event during Kshitij (Annual Techno-management fest of IIT Kharagpur). Arena was a prototype of an earthquake situation where in victims were visible light sources and the floor consisted of several vibrating regions. We programmed an Atmega-32 micro-controller to use light dependent resistors for detecting victims and an accelerometer to detect and escape vibrating regions in the arena.