Ayush Jain

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Education

Institution	Degree	Grade
McGill University Montreal, Canada (2015 – *)	**Master of Science, Computer Science** - Supervisor: Prof. Doina Precup	3.8 / 4
NSIT, Univ. of Delhi New Delhi, India ***(2008 – 2012)***	**Bachelor of Engineering in Computer Engineering** - Dept. Rank: 5/120 - Class: 1st ***(With Distinction)***	~ 3.82 / 4 (78.88%) ***(Topper's : 82.70%)***

Work Experience

McGill University
Montreal, Canada
(May, 2016 – *)

Research Assistant
Improving credit assignment with temporal abstraction in reinforcement learning (RL) setup. Currently I'm working on eligibility traces supplemented learning and planning methods adapted for temporally abstract actions (options).

McGill University
Montreal, Canada
(Sept, 2015 – *)

Teaching Assistant
COMP 202 – Foundation of Programming
COMP 208 – Computers in Engineering
Interacted with students and helped them with the course, took tutorial sessions, and graded assignments and exams. These are introductory courses on Java, C and scripting languages.

Adobe Systems
Noida, India
(July, 2012 – August, 2015)

Computer Scientist
AEM Assets, Adobe Marketing Cloud *(May, 2014 – August, 2015)*
Released major version of Adobe Drive as a dev-owner. Adobe Drive maps cloud based assets as local network drives and provides version control capabilities.
- Developed functionality for virtual collections of cloud assets;
- Added major improvements to Drive's kernel extension.
- Added platform support for Windows 8, OSX Yosemite and El Capitan releases.

CPSI (Raster Image Processing), PPBU *(July, 2012 – May, 2014)*
- Worked on a page description language's translation engine - PDFtoPS.
- Worked on different font technologies, vector imaging and color management.
- Shipped major features in font handling, imaging, and reliability improvements.

National Informatics Centre (NIC)
Ministry of Comm. & IT, Govt. of India
(May – July, 2011)

Research Intern, NIC – NHRC Division
Developed a library for fingerprint enrolment, feature extraction and matching. This library is being used in NIC's project 'Prisons Management System'.

Technical Skills

Programming Languages	C, C++, Python, Java, Matlab
Tools & Technologies	Linux/Unix, Visual Studio, Eclipse, Xcode, IntelliJ, Git, Perforce, SQL

Selected Projects

Eligibility Trace based Methods to Supplement Backpropagation Through Time in RNNs ***(2016)***
Experimented on a recurrent neural network which used BPTT on a temporal record over latent variables. Our experiment confirmed theoretical understanding - traces help distribute credit to a greater depth leading to faster convergence.

Learning Better Word Embeddings with Morphological Knowledge ***(2015)***
Experimented on a neural network which simultaneously learns word and morpheme embeddings - capturing the explicit relationship among morphemes. I was able to derive better representation for rare morphological derivatives of words and word embeddings learnt performed better on analogical task.

A Generalized Architecture for EEG Data Analysis ***(2015)***
Deploying machine learning techniques on EEG data requires a highly tuned architecture specific to task at hand. There is no common architecture to handle all EEG data irrespective of the task. We experimented on designing a generalized, task-insensitive architecture for EEG data. Used deep learning techniques to propose generic frameworks for statistical EEG data set, which don't require any hand crafted nor domain specific features for EEG classification.

Reinforcement Learning: Self Learning in Games using TDL and CEL ***(2012)***
Mentor: Dr. Satish Chand, Professor at Division of Computer Engineering, NSIT, University of Delhi
Applied reinforcement learning to games, explored Temporal Difference Learning and Co-Evolutionary Learning. Developed real-time self-learning AI bots using a hybrid of TDL and CEL. Developed bot had 80% success rate over a 3-ply heuristic minimax opponent.

Automated Car Number Plate Recognition System ***(2011)***
Mentor: Dr. M.P.S. Bhatia, Professor at Division of Computer Engineering, NSIT, University of Delhi
Developed an automated license plate recognition system in Indian scenario. Trained a pattern recognition system as plate and non-plate regions using Support Vector Machines. Character detection was done using OCR segmentation followed by SIFT for mapping feature vectors.

Selected Achievements

NSIT, University of Delhi (2008-'12)	**Merit Scholarship and Tuition Fee Waiver**
NSIT, University of Delhi ***(2011)***	**2nd in Linux Challenge, Tech. fest Innovision 2011**
AIEEEE ***(2008)***	**In top 0.05% students among 1 Million+ applicants** ***(Rank:527)***
Science Olympiad Foundation ***(2007)***	**Gold Medalist & School Topper, 9th National Science Olympiad**
Ahlcon Public School ***(2006)***	**Principal's Award and Merit Scholarship for Academic Excellence**
Brightlands School ***(2006)***	**Principal's Award for Excellence in Computer Science**
TASVIM, Dehradun ***(2005)***	**7th in 27th Mathematical Ability Merit Scholarship Test**

Workshops

Ethical Hacking & Information Security, Kyrion Digital Securities ***(2010)***

.NET Programming & Security, Summer Training from Kyrion Digital Securities ***(2010)***

Robotics & Embedded Systems, Roboticwares Pvt. Ltd. ***(2010)***

Fundamentals of Robotics, Technophilia Solutions ***(2008)***