Mohit Agarwal

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Education

Georgia Institute of Technology Aug'14 - Present
MS and PhD in Electrical and Computer Engineering, **GPA: 4.0/4.0**
Expected Graduation: Fall 2020

Indian Institute of Technology Kanpur July'10 - May'14
Bachelors in Electrical Engineering **GPA: 8.7/10.0**

Research Interests

Brain-Computer Interfaces, Human-In-The-Loop Reinforcement Learning, Ubiquitous Computing Applications in Machine Learning, Deep Learning and Signal Processing

Technical Skills

Python, C/C++, Java, MATLAB/R, Android Development, Web (HTML/CSS/d3/js), LaTeX
Deep Learning Frameworks: **Tensorflow**, Caffe, Torch and Keras

Internships

Apple (CA, USA) Summer'18
Wireless Technologies Group - *Wireless Software Development*
- Developed a system-level discrete event simulator in C++ to characterize and optimize the parameters of a radio-access technology (undisclosed, and developed in-house)

Lawrence Livermore National Laboratory (CA, USA) Summer'17
CASC Group*Machine Learning Research*,
- Automated the Pair-Correlation Function (PCF) estimation for arbitrary point clouds (which traditionally either require manual tuning for estimation, or takes several days for MD simulation)

Cisco (CA, USA) Summer'16
Deep Learning Research
- Designed DNNs using LSTMs in Tensorflow, for action recognition in video clips using UCF-101
- The proposed stateful model perfomed with more than 25% accuracy over stateless model

Syracuse University (NY, USA) Summer'13
Sensor Fusion Lab - *Wireless Communication Research*
- Developed algorithm for automatic identification of digital modulation in wireless communication in the presence of noisy environment having unknown channel parameters using Bayesian model
- Proposed *Collapsed Gibbs sampling* based approach for channel parameter estimation
- Performs with more than 90% correct classification probability for higher-order QAMs

Research Experience

Multi-Human Assisted Learning for Machine Agents using EEG Aug'18 - Present
BCI Research Project, Reinforcement Learning
- Research, design and develop an interesting solution paradigm allowing humans to assist RL algorithms without burdening human-in-the-loop through EEG-based brain waves
- Demonstration of the impact of our approach in improving state-of-the-art RL algorithms (e.g., DQN) by developing multiple Atari-like discrete-grid based games in OpenAI Gym
- Experimentally showed that error-potentials can be learned in a zero-shot manner (with AUC ≥ 0.8), and achieves a training acceleration of **2.25x** while making 75.56% less queries

Low-Power Command Detection for BCI Wearables Aug'16 - Aug'18
BCI Research Project, Ubiquitous Computing, Deep Learning
- Proposed a wakeup command detection design and detection strategy enabling always-on BCI wearables to run on low-power mode achieving **2.7x** improvement in battery life
- Proposed BLINK, an algorithm to self-learn and detect eye-blinks in user brainwaves with **98% accuracy** and low false-positive rate without requiring any user-training

Coursework

Machine learning, Deep Learning, Data Structures and Algorithms, Probability and Statistics, Convex Optimization, Android Development, Applied Cryptography, Mobile Computing, Information Visualization

Selected Awards

- Semi-Finalist of Qualcomm Innovation Fellowship 2018, USA
- Ranked 2nd in worldwide Melanoma Detection Challenge (2016) organized by ISBI
- Recipient of MCM Scholarship for continued excellent academic performance (2010-2014)

Professional Activities

PC Member: ICWSM'20, **Session Chair:** Allerton'19, **Reviewer:** ACM CHI'20, IMWUT'20,'19, CogSci'20, ACI'19, MobileHCI'19, ICWSM'20,'19, AutomotiveUI'19,, IEE TMC'17,'18,'19