

# Sanjay Thakur

MRL/RLLAB/MILA · MASTERS IN COMPUTER SCIENCE, MCGILL UNIVERSITY

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## Education

### Masters of Science in Computer Science

RLLAB/MILA, MCGILL UNIVERSITY

- GPA: 3.55/4.

Montreal, Canada

September 2016 - Expected Jan 2019

### Bachelor of Technology in Computer Science and Engineering

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY

- GPA: 7.84/10.

Jaipur, India

July 2012 - April 2016

## Experience in Research/Academia

### Research Assistant, MRL/RLLab/MILA

SUPERVISORS:: Dr. David Meger AND Dr. Doina Precup

- To generate sample-efficient and safe controllers in multiple tasks in Imitation Learning set-up.

Montreal, Canada

May 2017 - Expected January 2019

### Machine Learning Research Intern, Borealis AI

REPORTING MANAGER:: Yevgeniy Vahlis

- I analyzed the problem of long term dependencies in the sequential modeling problem.

Toronto/Montreal, Canada

June 2018 - October 2018

### Teaching Assistant, McGill University

DATABASE SYSTEMS (COMP 421), APPLIED MACHINE LEARNING (COMP 551)

- The tasks involved designing assignments, giving tutorials, and grading the submissions.

Montreal, Canada

Jan.2017-Apr.2017, Sep.2017-Apr.2018

### Research Intern at LATECE, UQAM, [Profile Link at LATECE](#)

SUPERVISOR:: Dr. Naouel Moha

- Developed tools to detect potential anti-patterns during software development and hence lead to better software evolution later.

Montreal, Canada

May 2015 - August 2015

## Publications/Posters/Talks

### Uncertainty Aware Learning from Demonstrations using Bayesian Neural Networks

ICRA 2019

- Authors::Sanjay Thakur, Herke Van Hoof, Juan Camilo Gamboa Higuera, Doina Precup, David Meger

Montreal, Canada

2019

### Sample Efficient Learning From Demonstrations on Multiple Tasks

IMITATION LEARNING AND ITS CHALLENGES IN ROBOTICS, NeuRIPS 2018

- Authors::Sanjay Thakur, Herke Van Hoof, Juan Gamboa, Kushal Arora, Doina Precup, David Meger

Montreal, Canada

2018

### A strategical game theoretic based demand response model for residential consumers in a fair environment.

INTERNATIONAL JOURNAL OF ELECTRICAL POWER & ENERGY SYSTEMS. 2018 APR 30;97:201-10.

- Authors::Pal S, Thakur S, Kumar R, Panigrahi BK.

Jaipur, India

2016

## Industrial Experience

### Remote Deep Learning Intern

DATA CULTURE INC.

- Designed deep architectures that used cascaded LSTM and feed-forward MLP.
- Goal was to take actions to minimize or even pre-empt the online purchase returns.

Montreal, Canada

May 2017 - June 2017

## Software Development Intern

SUPPLY.AI

Mumbai, India

June 2016 - Aug 2016

- Developed modules that automate the Exploratory Data Analysis of the datasets.
- Goal was to enhance communication between Apache Spark based units.
- These modules reduced considerable efforts on repetitive tasks made by the employees.

## Remote Software Development Intern

ANALYZE N CONTROL

Mumbai, India

October 2015 - February 2016

- Developed an android application that invokes certain web-services via SOAP requests.
- Goal was to notify stockbrokers with latest notifications by regulators like stock exchanges.

## Patents

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### Railway Maintenance Monitoring System

Jaipur, India

[LINK TO PUBLISHED PATENT \(APPLICATION NO. 1098/DEL/2014\)](#)

2014

- Made an application for the detection and maintenance of Gears and safety-equipments in the Railway Stations for the Indian Railways in a centralized manner via GPS Integration.
- Installed in 3 railway stations.

### Intelligent Energy Management System

Jaipur, India

[LINK TO THE INVENTION \(PATENT APPLICATION NUMBER: 2407/DEL/2015\)](#)

2015

- Made a prototype that uses Game Theory and Machine Learning techniques on Demand Side Management, and variable tariff blocks.
- Goal was to reduce the power consumption bill and variability between power supply and demand.
- It was the central idea behind the startup *SensiYantra* which although didn't work, gave some invaluable lessons.

## Open Source Code Contributions

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### Proximal Policy Optimization (PPO) with Generalized Advantage Estimation

[LINK TO THE REPOSITORY](#)

- Added model saving and restoring feature to the code-base of a Tensorflow implementation of the PPO algorithm.

## Selected Honors & Awards

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### INTERNATIONAL

2015 **SmartMeter**, Runner-ups, GridTech'15 International Conference & Exhibition

New Delhi, India

### DOMESTIC

2013 **NANo**, 3<sup>rd</sup> prize in Android/Web app. development, competition by *Swiftday LLC, USA*

Jaipur, India

2012 **Ship-E-Trophy**, 1<sup>st</sup> prize in the Robotic event, competition at *Neuron'12, MNIT, Jaipur*

Jaipur, India

## Skills

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**Machine Learning Libraries** TensorFlow, PyTorch — Advanced Level Expertise

**Programming Languages** Python, Java, C, MySQL — Advanced Level Expertise

**Scripting Languages** JavaScript, PHP, HTML — Intermediate Level Expertise

**Others** Neo4j, CSS — Intermediate Level Expertise

## Miscellaneous

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2017 **Social Service**, taught TensorFlow and Git in McGill Innovation's *AI for Social Good* Summer Lab.

Montreal, Canada

2013 **Zine Website**, Developed the *website* for Zine.

Jaipur, India

2012-2016 **Zine Profile**, Zine Alumni, Robotics and Research Group of MNIT.

Jaipur, India

2013-2016 **Organizer & Lecturer**, at Annual Zine workshop

Jaipur, India