

# KARUSH SURI

[LinkedIn](#) ◇ [Google Scholar](#) ◇ [GitHub](#)

Homepage- [karush17.github.io](http://karush17.github.io)

Email- [karush.suri@mail.utoronto.ca](mailto:karush.suri@mail.utoronto.ca)

## RESEARCH INTERESTS

---

Karush is a Deep Learning Researcher at Huawei Noah's Ark Lab in Toronto. His research focuses on developing intelligent reinforcement learning agents which can reason about the world and solve practical tasks by obtaining abstract knowledge about their components. Karush's current interests lie at the intersection of Energy-based Reinforcement Learning and Probabilistic Control.

## EDUCATION

---

### University of Toronto

2019 - 2021

*Master of Applied Science (M.A.Sc)*

*Toronto, Canada*

- Department: Electrical & Computer Engineering
- Thesis: Deep Hierarchical Reinforcement Learning ([link](#)) ([video](#))
- Advisors: Dr. Yuri Lawryshyn & Dr. Konstantinos Plataniotis
- GPA: 4/4

### Amity University

2015 - 2019

*Bachelor of Technology (B.Tech)*

*Delhi, India*

- Department: Electronics & Communication Engineering
- Thesis: Application of Deep Learning & Game Theory for Sign Language Recognition using Wearable Sensors ([link](#))
- Advisor: Dr. Rinki Gupta
- GPA: 8.78/10

## SCHOLARSHIPS & AWARDS

---

### University of Toronto, Canada

Electrical & Computer Engineering Fellowship

*2020-2021*

Edward S. Rogers Graduate Scholarship

*2019-2020*

### Amity University, India

Best in Technical Innovation Award (class of 2015-2019)

*2019*

Most Frugal Innovation Award

*2018*

100% Curriculum Merit Scholarship

*2015*

### Others

Young Achievers Award

*2015*

## RESEARCH APPOINTMENTS

---

### Huawei Noah's Ark Lab

2021 - Present

*Deep Learning Researcher*

*Toronto, Canada*

- Advisor: Dr. Jun Luo
- Project: Self-Supervised Learning for Motion Prediction

## **Robot Vision & Learning (RVL) Lab, University of Toronto**

*Visiting Researcher*

2021 - Present  
Toronto, Canada

- Advisor: Dr. Florian Shkurti
- Project: Overconservatism in Offline Reinforcement Learning

## **Borealis AI**

*Thesis Researcher*

2019 - 2021  
Toronto, Canada

- Advisor: Xiao Qi Shi
- Project: Deep Hierarchical Reinforcement Learning

## **CMTE, University of Toronto**

*Graduate Research Assistant- Reinforcement Learning*

2019 - 2021  
Toronto, Canada

- Advisors: Dr. Yuri Lawryshyn & Dr. Konstantinos Plataniotis
- Project: Deep Hierarchical Reinforcement Learning

## **Signal Processing Lab, Amity University**

*Undergraduate Research Assistant- Deep Learning*

2017 - 2019  
Delhi, India

- Advisor: Dr. Rinki Gupta
- Project: Application of Deep Learning & Game Theory for Sign Language Recognition using Wearable Sensors

## **PUBLICATIONS**

---

- Karush Suri, Xiao Qi Shi, Konstantinos N. Plataniotis, Yuri A. Lawryshyn, “*Energy-based Surprise Minimization for Multi-agent Value Factorization*”, DRLW NeurIPS 2020. ([website](#)) ([arXiv](#))
- Karush Suri, Xiao Qi Shi, Konstantinos N. Plataniotis, Yuri A. Lawryshyn, “*Maximum Mutation Reinforcement Learning for Scalable Control*”, DRLW NeurIPS 2020. ([website](#)) ([arXiv](#))
- Karush Suri, Rinki Gupta, “*Continuous Sign Language Recognition from Wearable IMUs using Deep Capsule Networks and Game Theory*”, Computers And Electrical Engineering, Elsevier, Vol. 78, 2019. ([arXiv](#)) ([code](#))
- Karush Suri, Rinki Gupta, “*Transfer Learning for sEMG-based Hand Gesture Classification using Deep Learning in a Master- Slave Architecture*”, IEEE IC3I 2018 (**oral**). ([arXiv](#)) ([code](#))

## **INDEPENDENT STUDIES**

---

- Karush Suri, “*On Variational Generalization Bounds for Unsupervised Visual Recognition*”, Report, 2020. ([link](#)) ([code](#))
- Karush Suri, “*On Cooperation in Multi-Agent Reinforcement Learning*”, Report, 2020. ([link](#)) ([code](#))
- Karush Suri, Shashank Saurav, “*Attentive Hierarchical Reinforcement Learning for Stock Order Executions*”, Report, 2020. ([link](#)) ([code](#))

## **TEACHING ASSISTANTSHIPS**

---

- ECE1512H *Digital Image Processing and Applications*, University of Toronto (Winter 2021)
- CSC104H *Computational Thinking*, University of Toronto (Winter 2021)
- CSC2209H *Computer Networks*, University of Toronto (Fall 2020)
- CSC458H *Computer Networking Systems*, University of Toronto (Fall 2020)

- CSC258H *Computer Organization*, University of Toronto (Winter 2020)
- MATH *Integral Calculus*, Sai Kripa Orphanage (Summer 2016)
- MATH *Numerical Differentiation*, Sai Kripa Orphanage (Summer 2016)
- MATH *Linear Algebra*, Sai Kripa Orphanage (Summer 2016)

## INTERNSHIP EXPERIENCE

---

**EdAuthority** 2018-2019  
*Content Management Intern- Data Science* *Delhi, India*

- Published blog posts on data science concepts and their extensions to the education industry.
- Backend website management and development of scalable solutions for a digital platform.

**Airtel** 2018  
*Summer Engineering Intern* *Delhi, India*

- Project entitled “Fundamentals of Network Communication”.
- Calibrated network interface cards and connectivity sensors for throughput handling.

**Reliance Jio** 2017  
*Summer Engineering Intern* *Delhi, India*

- Project entitled “Excel Data Processing Automator using Python Programming”.
- Automated excel data management for spreadsheet handling and cell-to-cell logging.

**Sony** 2016  
*Summer Engineering Intern* *Delhi, India*

- Project entitled “LCD Television Systems and BRAVIA Engine Applications”.
- Programmed BRAVIA engine cards for video processing and image analysis.

## ORGANIZATIONAL WORK & SERVICES

---

**IEEE Signal Processing & Integrated Networks (SPIN)** 2017-2019  
*Lead Organizer* *Delhi, India*

- Head of the stage team at 6<sup>th</sup> SPIN.
- Member of the coordinating committee at 5<sup>th</sup> SPIN.
- Member of the volunteering committee at 4<sup>th</sup> SPIN.

**Signal Processing Lab, Amity University** 2017-2019  
*Lab Assistant* *Delhi, India*

- Hand motion data collector for lab test subjects.
- sEMG and IMU sensor calibrator for real-time demonstrations.

## TECHNICAL SKILLS

---

**Languages-** Python, Lua, HTML, C, C++, Assembly, Markdown, MATLAB, L<sup>A</sup>T<sub>E</sub>X.

**Frameworks-** PyTorch, Tensorflow, torch7, Numpy, Gym, MuJoCo, Flask, ROS.

**Platforms-** Amazon Web Services, Google Cloud Platform, Git.