

KARUSH SURI

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

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RESEARCH INTERESTS

Karush is a Deep Learning Researcher at Huawei Noah's Ark Lab in Toronto. His research focuses on developing intelligent learning systems which can theoretically reason about the world and solve practical tasks by obtaining abstract knowledge about their components. Karush's current interests balance between the theoretical and practical aspects of Energy-based Reinforcement Learning with extensions to Probabilistic Modeling.

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: Graph Representational Learning for Logic Synthesis

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 6th SPIN.
- Member of the coordinating committee at 5th SPIN.
- Member of the volunteering committee at 4th 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^AT_EX.

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

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