

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 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

Master of Applied Science (M.A.Sc)

2019 - 2021

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

Bachelor of Technology (B.Tech)

2015 - 2019

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

Deep Learning Researcher

2021 - Present

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*”, Deep Reinforcement Learning Workshop, 34th Conference on Neural Information Processing Systems (NeurIPS) 2020. ([website](#)) ([arXiv](#))
- Karush Suri, Xiao Qi Shi, Konstantinos N. Plataniotis, Yuri A. Lawryshyn, “*Maximum Mutation Reinforcement Learning for Scalable Control*”, Deep Reinforcement Learning Workshop, 34th Conference on Neural Information Processing Systems (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*”, 3rd International Conference on Communication and Computational Intelligence (IC3I) 2018, IEEE. ([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

Content Management Intern- Data Science

2018-2019

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

Summer Engineering Intern

2018

Delhi, India

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

Reliance Jio

Summer Engineering Intern

2017

Delhi, India

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

Sony

Summer Engineering Intern

2016

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)

Lead Organizer

2017-2019

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

Lab Assistant

2017-2019

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.