

Maksim SOROKIN

Ph.D. student in Robotics @ Georgia Tech

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My research interests lie at an intersection of reinforcement learning and computer vision. In particular, when applied to robotic applications such as navigation and environment interaction/manipulation.

Competences : Python Pytorch Pybullet iGibson OpenCV Numpy C/C++ Tensorflow ROS docker

EDUCATION

2020 - Now	Georgia Institute of Technology Ph.D. in Robotics with focus on Vision-based Deep Reinforcement Learning Advised by Dr. Sehoon Ha	(Atlanta, GA)
2017 - 2020	Georgia Institute of Technology M.S. in Computer Science, Specialization in Computational Perception and Robotics Advised by Dr. C. Karen Liu	(Atlanta, GA)
2013 - 2017	Izmir University of Economics B.S. in Computer Engineering	(Izmir, Turkey)

EXPERIENCE

Jun 2022	AI Resident	EVERYDAY ROBOTS
Sep 2021	I am currently a Artificial Intelligence PhD Resident at Everyday Robots (formerly Google X). Reinforcement Learning Computer Vision	
May 2020	Graduate Researcher	GEORGIA TECH
Jan 2019	at Graphics Lab under Dr. C. Karen Liu ➢ Worked on object localization and manipulation for agents with egocentric view ➢ Developed Vision-based Deep Reinforcement Learning pipeline ➢ Published "Learning Human Search Behavior from Egocentric View" paper. Reinforcement Learning Computer Vision Manipulation Navigation	
May 2020	Head Teaching Assistant	GEORGIA TECH
Sep 2018	Artificial Intelligence class under Dr. Thomas Ploetz & Dr. Thad Starner ➢ Helped organize and lecture the class of 800+ students ➢ Led the team of 16 Teaching Assistants ➢ Responsible for assignments, exams, and course coordination AI Machine Learning Python Numpy jupyter docker	

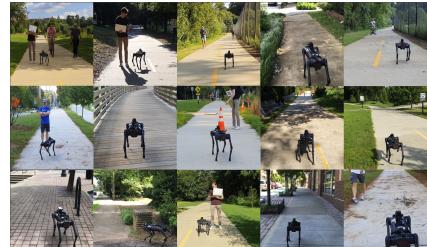
PUBLICATIONS

✉ IEEE ROBOTICS AND AUTOMATION LETTERS (RA-L) [2022]

LEARNING TO NAVIGATE SIDEWALKS IN OUTDOOR ENVIRONMENTS

Maks Sorokin, Jie Tan, C. Karen Liu, Sehoon Ha

We design a system which enables zero-shot policy transfer to the real-world outdoor environments for sidewalk navigation task. Our approach is evaluated on a quadrupedal robot navigating sidewalks in the real world walking 3.2 kilometers with a limited number of human interventions.



✉ ROBOTICS : SCIENCE AND SYSTEMS [2022]

HUMAN MOTION CONTROL OF QUADRUPEDAL ROBOTS USING DEEP RL

Sunwoo Kim, Maks Sorokin, Jehee Lee, Sehoon Ha

We propose a novel motion control system that allows a human user to operate various motor tasks seamlessly on a quadrupedal robot. Using our system a user can execute a variety of motor tasks, including standing, sitting, tilting, manipulating, walking, and turning, on simulated and real quadrupeds.





LEARNING HUMAN SEARCH BEHAVIOR FROM EGOCENTRIC VIEW

Maks Sorokin, Wenhao Yu, Sehoon Ha, C. Karen Liu

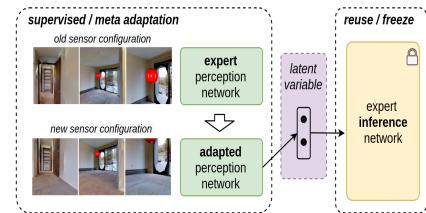
We train vision-based agent to perform object searching in photorealistic 3D scene. And propose a motion synthesis mechanism for head motion re-targeting. Using which we enable object searching behaviour with animated human character (PFNN/NSM).



A FEW SHOT ADAPTATION OF VISUAL NAVIGATION SKILLS TO NEW OBSERVATIONS USING META-LEARNING

Qian Luo, Maks Sorokin, Sehoon Ha

We show how vision-based navigation agents can be trained to adapt to new sensor configurations with only three shots of experience. Rapid adaptation is achieved by introducing a bottleneck between perception and control networks, and through the perception component's meta-adaptation.



🏆 AWARDS

2021 ML@GT fellowship

Awarded the fellowship by the Machine Learning Center at Georgia Tech

2020 “Thank a Teacher” @ Georgia Tech

Recognition for excellence in teaching Artificial Intelligence class

2017 Scientific and Technological Research Council of Turkey

Finalist of Country-wide Software Development University Competition

2017 Informatics Association of Turkey

Best University Graduation Project - University Exhibition Visitors Choice

2017 Udacity DIDI - Self-driving Car challenge

7th in round 1, and 12th in round 2 out of 2000 teams competition

💻 PROJECTS

REAL2SIM IMAGE DOMAIN ADAPTATION [2018]

GITHUB.COM/RAN2CAN

replication of sim2real paper experiment

- > Real world to canonical image conversion with 100% synthetic data
- > Substituting original generative network with U-NET “style” transfer

[Python](#) [Pytorch](#) [UNET](#) [V-REP](#) [Lua](#) [Numpy](#) [fastai](#)



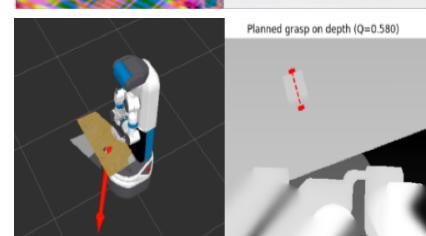
FETCH ROBOT OBJECT PICKING WITH GQ-CNN [2018]

WEBLINK

Mobile manipulation course project

- > Navigation and object grasping ROS pipeline
- > Using MoveIt! & GQ-CNN using Fetch robot in Gazebo simulator

[Python](#) [Tensorflow](#) [OpenCV](#) [Gazebo](#) [Docker](#) [ROS](#)



LEARNING SWING MOTION USING SAC [2018]

WEBLINK

Character Animation course project

- > Learning to pull up bar swing motion from scratch
- > Using Soft-Actor Critic Reinforcement Learning method

[Python](#) [C++](#) [Tensorflow](#) [DARTsim](#)

