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

May 2020 – Jan 2019 — **Graduate Researcher** — Georgia Tech
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
- Submitted conference paper (currently "under review")

Reinforcement Learning | Computer Vision | Manipulation | Navigation

May 2020 – Sep 2018 — **Head Teaching Assistant** — Georgia Tech
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

Aug 2017 – Jan 2017 — **Project Mentor & Reviewer** — Udacity (USA)
Artificial Intelligence and Deep Learning programs
- Mentored and guided 200+ students providing feedback on 1500+ projects
- Projects covered : CNN, GAN, and RNN

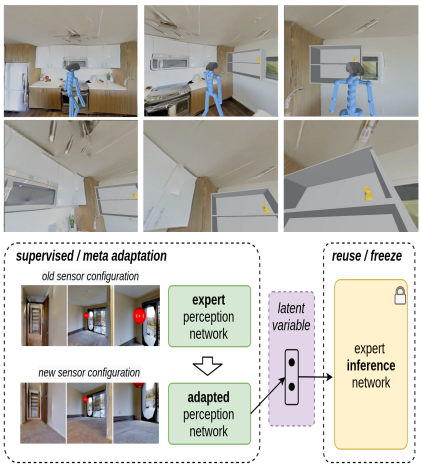
AI | Deep Learning | Python | Tensorflow | Keras | Numpy | CNN | RNN | GAN

Publications

Learning Human Search Behavior from Egocentric View — pre-print

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 retargeting. 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 — pre-print

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.

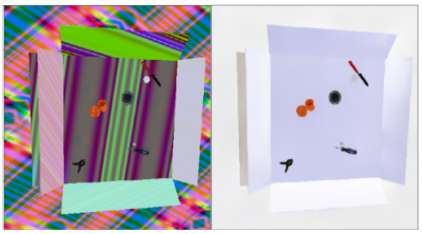
Projects

Real2Sim Image Domain Adaptation 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

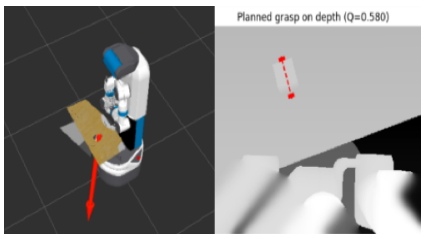


Fetch Robot Object Picking with GQ-CNN WEBLINK

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

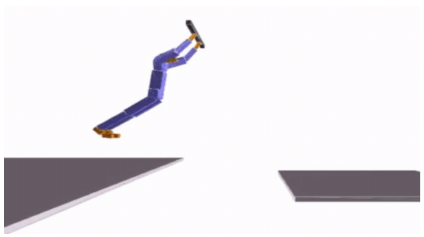


Learning swing motion using SAC WEBLINK

Character Animation course project

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

Python | C++ | Tensorflow | DARTsim



Awards

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