John Seon Keun Yi

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Research interests

Learning from limited/unrefined data; Human-robot interaction; Semantic reasoning for robotics

Education

Georgia Institute of Technology, Atlanta, GA — 2020 – 2022 (Expected)
Master of Science, Computer Science (Perception and Robotics)
GPA: 3.87/4.0

Georgia Institute of Technology, Atlanta, GA — 2014 – 2020
Bachelor of Science, Computer Science (Devices and Intelligence)
GPA: 3.7/4.0

Publications

Conference and Journal Publications

- **John Seon Keun Yi***, Minseok Seo*, Jongchan Park, Dong-Geol Choi. PT4AL: Using Self-Supervised Pretext Tasks for Active Learning. European Conference on Computer Vision (ECCV), 2022.
- Jingdao Chen, **John Seon Keun Yi**, Mark Kahoush, Erin Cho, Yong Kwon Cho. Point Cloud Scene Completion of Obstructed Building Facades with Generative Adversarial Inpainting. MDPI Sensors, 2020.

Preprints

- Chaoning Zhang, Chenshuang Zhang, Junha Song, **John Seon Keun Yi**, Kang Zhang, In So Kweon. A Survey on Masked Autoencoder for Self-supervised Learning in Vision and Beyond. ArXiv, 2022.
- **John Seon Keun Yi**[*], Yoonwoo Kim[*], Sonia Chernova. Incremental Object Grounding Using Scene Graphs. ArXiv, 2021.

Research Experience

Georgia Institute of Technology, Atlanta, GA — 2022 – Present
Research Project ***(PI: Prof. Sehoon Ha, Prof. Bruce Walker)***

- Developed an HRI model for a guide dog robot that distinguishes different force commands from the harness and reacts by adjusting its movement.
- Proposed and demonstrated a locomotion policy for a quadrupedal robot that walks while battling external perturbations.

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea — Summer 2022
Research Intern ***(PI: Prof. In So Kweon)***

- Worked on a task agnostic Masked Autoencoder that can learn both high and low-level features through knowledge distillation and minimal supervision.
- Documented a survey paper on masked image models in self-supervised learning.

Hanbat National University, Daejeon, South Korea — Summer 2021
Research Intern ***(PI: Prof. Dong-Geol Choi)***

- Achieved state-of-the-art results on active learning baselines with a novel approach that uses self-supervised pretext tasks to learn representative features to be sampled for labeling.

*equal contribution

Georgia Institute of Technology, Atlanta, GA 2020 – 2021

*Research Project **(PI: Prof. Sonia Chernova)***

- Improved previous state-of-the-art object grounding task accuracy by 30% by using semantic scene graphs and a novel incremental grounding algorithm.

Georgia Institute of Technology, Atlanta, GA 2019 – 2020

*Undergraduate Research **(PI: Prof. Yong Kwon Cho)***

- Enhanced the quality of point cloud scene completion of building scans by using generative adversarial inpainting on orthogonal projections of building facades.

Work Experience

Samsung Strategy and Innovation Center, San Jose, CA Summer 2020

UVenture SWE Project Intern

- Selected as one of top three teams for a project idea pitch for a point-based navigation tool.
- Developed entire ROS pipeline and a working prototype on a custom TurtleBot platform.

Samsung Research, Seoul, South Korea Summer 2019

Software Research Intern

- Improved robot simulator accuracy by matching wheel motor dynamics of the robot simulator to that of the real robot.

Itential, Atlanta, GA Summer 2018

Software Engineer Intern

- Worked on full-stack development for web educational platform that hosts tutorials and classes of Itential products for new customers and employees.

Teaching

Georgia Institute of Technology, Atlanta, GA Fall 2020 – Present

Teaching Assistant - *CS 3630: Introduction to Perception and Robotics*
(Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022)

- Developed deep learning + robotics assignment: tuning a simple neural network for image classification and combining it with visual SLAM or RRT path planning.
- Created foundations for Duckiebot, a new mobile robot platform used starting Spring 2020. Built ROS environment, packages and documentation for setup.

Skills

Python, C++, JavaScript, HTML/CSS
Pytorch, ROS, Tensorflow, gtSam, Docker, Git, LaTeX