ISAAC KASAHARA

Research Engineer

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Website | LinkedIn | Github

PERSONAL PROFILE

An innovative and self-motivated computer vision engineer. Recently graduated with a Masters in Robotics with a background in computer science. Looking for new and challenging opportunities in computer vision.

PUBLICATIONS

1. Choi*, H., Kasahara*, I., Engin, S., Graule, M., Chavan-Dafle, N., & Isler, V. (2023). FineControlNet: Fine-level Text Control for Image Generation with Spatially Aligned Text Control Injection. Under review.
Website | Paper

1. Kasahara, I., Agrawal, S., Engin, S., Chavan-Dafle, N., Song, S., & Isler, V. (2023). RIC: Rotate-Inpaint-Complete for Generalizable Scene Reconstruction. Under Review. Patent Pending.
Website | Paper

1. Agrawal, S., Chavan-Dafle, N., Kasahara, I., Engin, S., Huh, J. & Isler, V. (2023). Real-time Simultaneous Multi-Object 3D Shape Reconstruction, 6DoF Pose Estimation and Dense Grasp Prediction. **IROS 2023**. Patent Pending.
Website | Paper

1. Kasahara, I., Stent, S., & Park, H. (2022). Look Both Ways: Self-supervising Driver Gaze Estimation and Road Scene Saliency. **ECCV 2022**. Patent Pending.
Website | Paper

CAREER HISTORY

RESEARCH ENGINEER

| Samsung AI Center NYC, Research Engineer | Apr 2023 - Present |
| Research Intern | Aug 2022 - Apr 2023 |

- Worked in Python to develop models and train deep learning models for robotic perception tasks.
- Utilized PyBullet and PyRender to generate synthetic data for training state of the art shape reconstruction models.
- Implemented machine learning models for detecting and locating objects in a real world robotic setting.
- Increased fluency in state of the art visual-language models for text-to-3D algorithms.
- Contributed to novel 6D pose and grasp estimation algorithm.
- Leveraged the generalization capabilities of large visual-language models for 3D scene reconstruction.
- Developed a method to control details at the instance level for diffusion based text-to-image generation models.

SOFTWARE ENGINEER

| Cirrus Aircraft, Engineer I | Jan 2020 - May 2020 |
| Intern | May 2019 - Aug 2019 |

- Programmed in C++ and Python using Microsoft Visual Studio.
- Developed software requirements for aircraft avionics components.
- Worked on developing algorithms in C++ for experimental sensors on the SF50 Jet using traditional 2D and 3D computer vision techniques.

ACADEMIC HISTORY

UNIVERSITY OF MINNESOTA

| Master of Science in Robotics, | Sep 2020 - May 2022 |

- GPA of 3.9/4.0
- Research Assistant for Professor Hyun Soo Park 2021 - 2022
  - Gave oral presentation at ECCV 2022 (top 0.8% of papers)
- Graduate Assistant for the University of Minnesota Robotics Master's program 2020 - 2021

| Bachelor of Science in Computer Science, Emphasis in Robotics and Artificial Intelligence | Sept 2017 - Dec 2019 |

- Graduated in 2 years with a GPA of 3.6/4.0
- Dean's List Fall 2017 & Spring 2019

SKILLS AND ABILITIES

Languages: Python, MATLAB, C++
Tools: Github, PyTorch, Linux, TensorFlow
Libraries: NumPy, OpenCV, SciPy, Open3D, PyBullet, PyRender
Skills: Visual-Language Models, 3D Shape Reconstruction, Diffusion Models, Machine Learning, 3D Multiview Geometry, Stereo Depth Estimation, Physics/Calculus, Linear Algebra, Gaze Estimation