Ryo **Hachiuma**

Computer Vision Researcher · Engineer

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Work

Konicaminolta *Apr. 2021 - Present*

Osaka, Japan *Computer Vision Engineer and researcher*

- Working on human pose estimation, object detection and human action recognition using neural networks.
- Working on developing deep learning inference tools for edge device (e.g. NVIDIA Jetson AGX Orin, Nano...).
- We develop extremely fast action recognition model which runs in 1900FPS on RTX3080Ti and 400FPS on Jetson AGX Orin while achieving the state-of-the-art classification accuracy. Movie Link
- We won an award in domestic conference MIRU 2022. News Release

Education

Keio University *Tokyo, Japan*

Ph.D. *Apr. 2018 - Mar. 2021*

- Working on 3D SLAM, surgery video analysis, egocentric human pose estimation.

Keio University *Tokyo, Japan*

M.S. in Computer Science and Engineering *Apr. 2016 - Mar. 2018*

Keio University *Tokyo, Japan*

B.S. in Computer Science and Engineering *Apr. 2012 - Mar. 2016*

Skills

Programming	Python, C/C++, Java, Matlab, Javascript
Deep Learning	PyTorch, Tensorflow, Caffe, OpenVINO, TensorRT, TFLite
Languages	English, Japanese

Selected Research Papers

Dynamics-Regulated Kinematic Policy for Egocentric Pose Estimation *Neurips*

Zhengyi Luo, **Ryo Hachiuma**, Ye Yuan, Kris Kitani *2021*

Proposed a method for object-aware 3D egocentric pose estimation that tightly integrates kinematics modeling, dynamics modeling, and scene object information.

Silhouette-based Synthetic Data Generation for 3D Human Pose Estimation with a Single Wrist-mounted 360° Camera *ICIP*

Ryosuke Hori, **Ryo Hachiuma**, Hideo Saito, Mariko Isogawa, Dan Mikami *2021*

Proposed a framework for 3D human pose estimation using a single 360° camera mounted on the user's wrist.

Toward Unsupervised 3D Point Cloud Anomaly Detection using Variational Autoencoder *ICIP*

Mana Masuda, **Ryo Hachiuma**, Ryo Fujii, Hideo Saito, Yusuke Sekikawa *2021*

Presented an end-to-end unsupervised anomaly detection framework for 3D point clouds.

Single-modal Incremental Terrain Clustering from Self-Supervised Audio-Visual Feature Learning *ICPR*

Reina Ishikawa, **Ryo Hachiuma**, Akiyoshi Kurobe, Hideo Saito *2020*

Presented a novel framework using the multi-modal variational autoencoder and the Gaussian mixture model clustering algorithm on image data and audio data for terrain type clustering.

Deep Selection: A Fully Supervised Camera Selection Network for Surgery Recordings *MICCAI*

Ryo Hachiuma, Tomohiro Shimizu, Hideo Saito, Hiroki Kajita, Yoshihumi Takatsume *2019*

Address the task of selecting the cameras with the best views from multiple video sequences for the purpose of recording surgery.

DetectFusion: Detecting and Segmenting Both Known and Unknown Dynamic Objects in Real-time SLAM *BMVC*

Ryo Hachiuma, Christian Pirchheim, Dieter Schmalstieg and Hideo Saito *2019*

Present an RGB-D SLAM system that runs in real time and can robustly handle semantically known and unknown objects that can move dynamically in the scene.

More papers can be found from Google Scholar!

Competitions

Diabetic Foot Ulcer Challenge *MICCAI*

1st prize *2020*

- Achived 1st prize at diabetic foot ulcer detection challenge. Our team develop Faster R-CNN based method to detect the foot ulcer.
- Competition link can be found at here.
- The journal paper can be found at this link.

CORSMAL Challenge *ICPR*

2nd prize *2020*

- Achived 2nd prize at CORSMAL challenge. Our team develop the neural network which predicts the container mass from audio-visual data.
- Competition link can be found at this link.
- The journal paper can be found at this link.

Awards

International

2019 **Honorable Mention Award**, Essay Competition - ICVSS *Sicily*

2019 **Best paper award**, Asia Pacific Workshop on Mixed and Augmented Reality *Japan*

Domestic

2022 **Interactive Poster award**, MIRU *Japan*

2020 **Best paper award**, CVIM *Japan*

2016 **Best paper award**, CVIM *Japan*