Ryo **Hachiuma**

COMPUTER VISION RESEARCHER · ENGINEER

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Work

Konicaminolta

OSAKA, JAPAN

Apr. 2021 - Present

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

PH.D.

Tokyo, Japan

Apr. 2018 - Mar. 2021

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

Keio University

M.S. IN COMPUTER SCIENCE AND ENGINEERING

Tokyo, Japan

Apr. 2016 - Mar. 2018

Keio University

B.S. IN COMPUTER SCIENCE AND ENGINEERING

Tokyo, Japan

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

Unified Keypoint-based Action Recognition Framework via Structured Keypoint Pooling

CVPR

RYO HACHIUMA, FUMIAKI SATO, TAIKI SEKII

2023

1900 FPS skeleton-based action recognition while achieving SoTA performance on multiple benchmarks.

Prompt-Guided Zero-Shot Anomaly Action Recognition using Pretrained Deep Skeleton Features

CVPR

FUMIAKI SATO, RYO HACHIUMA, TAIKI SEKII

2023

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*