Ryosuke Hori

Ph.D. Student, Keio University

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Summary

As a first-year Ph.D. student at Keio University, I have been passionately engaged in research on motion capture (MoCap) using computer vision and machine learning techniques. My previous work spans various aspects of MoCap, including pose estimation using a wearable omnidirectional camera, player trajectory extraction from volleyball game footage, 3D hand reconstruction from sign language videos, motion data correction for metaverse soccer viewing, and human pose estimation from event camera streams. My contributions to the field have been recognized through publications in domestic research conferences, peer-reviewed international conferences, and international journals, as well as patents filed for my research-related technologies.

Throughout my academic journey, I have actively participated in collaborative research, internships, and research assistantships, all aimed at advancing MoCap research. I am dedicated to developing and implementing innovative MoCap technologies for the betterment of sports and medical fields.

Research Interest

Fields: Computer Vision, Machine Learning, Biomechanics
Topics: Human Pose and Shape Estimation, Egocentric Vision, Event-based Vision, Gait Analysis

Education

2022-09 - Current	**Ph.D. in Engineering,** *Keio University*
2021-04 - 2022-09	**M.S. in Engineering,** *Keio University*
2017-04 – 2021-03	**B.S. in Engineering,** *Keio University*

Publications

Journal

- "Silhouette-Based 3D Human Pose Estimation Using a Single Wrist-Mounted 360° Camera", **Ryosuke Hori**, Ryo Hachiuma, Mariko Isogawa, Dan Mikami, Hideo Saito, *IEEE Access*, vol. 10, pp. 54957-54968, doi: 10.1109/ACCESS.2022.3177623, 2022.

International Conference

- "Prediction of Shuttle Trajectory in Badminton Using Player's Position", Yuka Nokihara, **Ryosuke Hori**, Ryo Hachiuma, Hideo Saito, *Proceedings of the 18th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP 2023)* , Volume 5: VISAPP, pages 788-795, ISBN: 978-989-758-634-7; ISSN: 2184-4321, 2023.

- "Silhouette-Based Synthetic Data Generation for 3D Human Pose Estimation with a Single Wrist-Mounted 360° Camera", **Ryosuke Hori**, Ryo Hachiuma, Mariko Isogawa, Dan Mikami, Hideo Saito, *IEEE International Conference on Image Processing (ICIP), pp. 1304-1308, doi: 10.1109/ICIP42928.2021.9506043, 2021.*

Conferences

Conference Participation

- "Silhouette-Based 3D Human Pose Estimation Using a Single Wrist-Mounted 360° Camera" (in Japanese), **Ryosuke Hori**, Ryo Hachiuma, Mariko Isogawa, Dan Mikami, Hideo Saito, *Meeting on Image Recognition and Understanding (MIRU),* 2021

- "3D Human Pose and Shape Estimation Using an Event Camera" (in Japanese), **Ryosuke Hori**, Mariko Isogawa, Dan Mikami, Hideo Saito, *IPSJ[1] SIG-CVIM[2] Conference,* 2022 (Honorable Mention Award from IPSJ SIG-CVIM, Excellent Research Presentation Award from IPSJ SIG-CGVI[3], Student Presentation Award from IPSJ SIG-CGVI)

    [1] *IPSJ: Information Processing Society of Japan*
    [2] *SIG-CVIM: Special Interest Groups on Computer Vision and Image Media*
    [3] *SIG-CGVI: Special Interest Groups on Computer Graphics and Visual Informatics*

- "Foot Pressure-Aware Human Mesh Recovery in 3D Scenes", Ryosuke Hori, Ryotaro Numata, *cvpaper.challenge Conference Summer*, 2022 (Best Paper Honorable Mention Award)

Invited Talk

- Invited Speaker at *Digital Human Technology Council AIST*, 2023
    Title: "Motion Capture Using Visual and Inertial Sensors"

Grants and Fellowship

2023-04 - 2026-03	Japan Society for the Promotion of Science (JSPS) Research Fellowship for Young Scientists DC1
2022-09 - 2023-03	Japan Science and Technology Agency (JST) Support for Pioneering Research Initiated by the Next Generation
2021-04 – 2022-09	Japan Student Services Organization (JASSO) Scholarship
2021-04 – 2022-03	Japan Educational Exchanges and Services (JEES) / Softbank Al Scholarship

Research Experience

2020-02 - Current	**Keio University** Bachelor's, Master's, and Ph.D. Student at Hyper Vision Research Laboratory
2022-12 - Current	**National Institute of Advanced Industrial Science and Technology (AIST)** Research Assistant at Artificial Intelligence Research Center (AIRC) Digital Human Research Team (DHRT)
2020-04 - 2022-03	**Nippon Telegraph and Telephone Corporation (NTT)** Collaborative Research at Media Intelligence Laboratory
2021-08 – 2021-12	**Preferred Networks** Research Intern / Part-time Engineer
2021-09 – 2021-10	**SONY** Research Intern at R&D Center
2020-08 – 2021-03	**NEC** Collaborative Research

Languages

- Japanese: native
- English: advanced