Taeil Jin

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RESEARCH INTERESTS

My research interests include real-time human character animation and humanoid robot animation. My long-term goal is to provide an appropriate human character movement response to human interaction behaviors or diverse furniture. I aim to create surrogate motions that mimic users' interactive behaviors within a given physical environment. Recently, I have been exploring machine learning-based generative models to generate suitable motions for specific furniture and to deploy the motions to robot structures.

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, South Korea
Ph. D. in Culture Technology / Motion Computing Laboratory — 2023
Advisor: Sung-Hee Lee

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, South Korea
M. S. in Culture Technology / Motion computing Laboratory — 2016
Advisor: Sung-Hee Lee

Kwangwoon University — Seoul, South Korea
B. S. in Division of Robotics (Intelligence System) — 2014
Advisor: Moon-ho Chung

RESEARCH EXPERIENCE

- **(Post Doc.), Humanoid motion generation from image data**, 2024-current.
  Korea Institute of Science and Technology (supervised by professor Hwasup Lim)
  As a Post Doc. of KIST, developing a motion acquisition framework from image data.
- **(Conference Session Chair), Pacific Graphics**, 2023.
  As a session chair of Pacific Graphics 2023, managing the proceedings of a presentation session, ensuring that presentations run smoothly and maintaining the schedule.
- **(Visiting Scholar), Planning the End-Effectors trajectory for quadruped robot**, 2019.
  Edinburgh university (supervised by professor steve tonneau)
  As a visiting student of Edinburgh university, studying the trajectory planning for quadruped robot using optimizer.
- **(Research Project), Virtual avatar animation for contact interaction with real furniture**, 2015 - 2019.
  Ministry of Science, ICT and Future Planning, Grobal Frontier Project
  As a leading researcher of the project, developed motion retargeting method for 3D human avatar response to different furniture with human-space furniture.
- **(Real-time Demonstration), Real-time demonstration of generating the avatar motion for dissimilar environments**, 2016-2019.
  KAIST
  As a leading developer of the real-time demonstration, implemented the real-time framework for generating the user's avatar motion, and demonstrated the avatar-mediated telepresence for dissimilar environment. I participated as the main presenter of a real-time demonstration for promoting our laboratory and department, using an implemented real-time framework.

- **(Motion Data Acquisition), Constructing trainable motion data using motion capture device and implemented motion retargeting framework.**, 2018-2023
  (Position: Assistant), *KAIST*

PUBLICATIONS/CONFERENCE

International Journals

1. InterFaceRays: Interaction-Oriented Furniture Surface Representation for Human Pose Retargeting [Project page]
   Taeil Jin, Yewon Lee, Sung-Hee Lee
   Computer Graphics Forum (CGF), 44(2):e70094, (Proc. Eurographics 2025)
2. DAFNet: Generating Diverse Actions for Furniture Interaction by Learning Conditional Pose Distribution [Project page]
   Taeil Jin, Sung-Hee Lee
   Computer Graphics Forum (CGF), 42(7):e14962, (Proc. Pacific Graphics 2023)
3. MOVIN: Real-time Motion Capture using a Single LiDAR
   Deok-Kyeong Jang, Dongseok Yang, Deok-Yun Jang, and Byeoli Choi, **Taeil Jin**, Sung-Hee Lee
   Computer Graphics Forum (CGF), 42(7):e14961, (Proc. Pacific Graphics 2023)
4. Aura Mesh: Motion Retargeting to Preserve the Spatial Relationships between Skinned Characters [Project page]
   Taeil Jin, Meekyoung Kim and Sung-Hee Lee
   Computer Graphics Forum (CGF), 37(2):311-320, (Proc. Eurographics 2018)

International Conferences

5. SmartManikin: virtual humans with Agency for Design Tools [Project page]
   Bokyung Lee, **Taeil Jin**, Sung-Hee Lee, and Daniel Saakes
   ACM Conference on Human Factors in Computing Systems (CHI), (CHI 2019)
6. Trajectory-Free Reactive Stepping of Humanoid Robots Using Momentum Control [Project page]
   Hyunchul Choi, Sukwon Lee, **Taeil Jin**, and
   Sung-Hee Lee
   IEEE-RAS International Conference on Humanoid Robots 2015

Posters

7. Interaction Motion Retargeting to Highly Dissimilar Furniture Environment [Paper]
   Taeil Jin and Sung-Hee Lee
   ACM SIGGRAPH / Eurographics Symposium on Computer Animation (SCA) 2019 Posters, page 8. ACM, 2019.
8. Motion Retargeting Preserve Spatial Relationship between Skinned Characters [Paper]
   Taeil Jin, Meekyoung Kim and Sung-Hee Lee
   ACM SIGGRAPH / Eurographics Symposium on Computer Animation (SCA) 2017 Posters, page 25. ACM, 2017.
9. Avatar-Mediated Contact Interaction between Remote Users for Social Telepresence [Paper]
   Jihye Oh, Yeonjoon Kim, **Taeil Jin**, Sukwon Lee, Youjin Lee and Sung-Hee Lee
   The 14th IEEE International Symposium on Mixed and Augmented Reality (ISMAR), page 1., 2015.
10. Trajectory-Free Reactive Stepping Of Physics-Based Character Using Momentum Control [Paper]
    Sukwon Lee, Hyunchul Choi, **Taeil Jin** and Sung-Hee Lee
    Proceedings of the ACM SIGGRAPH / Eurographics Symposium on Computer Animation (SCA), page 202., 2015.

PATENTS

1. Motion Retargeting Method to Preserve the Spatial Relationships between Skinned Characters and Apparatus therefor
   Sung-Hee Lee, **Taeil Jin**, and Meekyoung Kim

Application number: 10-2020-0005894 [KOR]
Registration number: 10-2161341-0000 [KOR]

AWARDS

- The honorable mention poster in ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA) in 2019

MEDIA COVERAGE

- The research achievement in the lab (about Global Frontier Project), Channel NewsAsia (Singapore), 2017 [Page]
- The research achievement in SmartManikin: Virtual Humans with Agency for Design Tools, Seamless (Japanese Media), 2019 [Page]
- The research achievement in the lab (about Global Frontier Project), HelloDD(which is Korea's No.1 Media in Science and Industry), 2015 [Page]

TECHNICAL SKILLS

- Programming Languages: C/C++, C#, Python, Matlab, CMake
- Operating Systems: Windows, Linux/Unix
- Libraries: Eigen, OpenGL, Igl, Alglib, Dlib, PyTorch
- Professional Tools: Maya, Unity, Premiere, MotionBuilder, Docker
- Experience of Motion Capture Device : Axis Neuron, xsense, OptiTrack, Kinect v1/v2, Zed
- Experience of AR/VR device : Oculus Rift dk1/dk2, Hololens v1

REFERENCES

FROM ACADEMIA

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