Yoonsang Lee

Associate Professor
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Academic Appointments

Associate Professor, Department of Computer Science, Hanyang University Mar. 2022 – present

Joint Appointment, Department of Artificial Intelligence, Hanyang University Sep. 2022 – Present

Visiting Scholar, School of Engineering and Computer Science, Victoria University of Wellington, . Mar. 2024 – Feb. 2025

Assistant Professor, Department of Computer Science, Hanyang University Mar. 2018 – Feb. 2022

Assistant Professor, Department of Computer Software, Kwangwoon University Mar. 2016 – Feb. 2018

Education

Ph.D., Electrical Engineering and Computer Science, Seoul National University Aug. 2014

Thesis: Control of Physically Simulated Humanoids for Generating Realistic Human Locomotion

Advisor: Jehee Lee

B.S., Mechanical and Aerospace Engineering, Seoul National University Aug. 2007

Publications

PhysicsFC: Learning User-Controlled Skills for a Physics-Based Football Player Controller,
Minsu Kim, Eunho Jung, **Yoonsang Lee**,
Accepted to ACM Transactions on Graphics (SIGGRAPH 2025 journal track)

Utilizing Motion Matching with Deep Reinforcement Learning for Target Location Tasks,
Jeongmin Lee, Taesoo Kwon, Hyunju Shin, **Yoonsang Lee**,
Eurographics 2024 Short Papers, April 2024

Adaptive Tracking of a Single-Rigid-Body Character in Various Environments,
Taesoo Kwon, Taehong Gu, Jaewon Ahn, **Yoonsang Lee**,
SIGGRAPH Asia 2023 Conference Papers, December 2023

Learning Human-like Locomotion Based on Biological Actuation and Rewards,
Minkwan Kim, **Yoonsang Lee**,
SIGGRAPH 2023 Posters, July 2023

Interactive Character Path-Following Using Long-Horizon Motion Matching With Revised Future Queries,
Jeongmin Lee, Taesoo Kwon, **Yoonsang Lee**,
IEEE Access, Volume 11, January 2023

Understanding the Stability of Deep Control Policies for Biped Locomotion,
Hwangpil Park, Ri Yu, **Yoonsang Lee**, Kyungho Lee, Jehee Lee,
The Visual Computer (2022), January 2022

Finite State Machine-Based Motion-Free Learning of Biped Walking,
Gyoo-Chul Kang, **Yoonsang Lee**
IEEE Access, Volume 9, January 2021

Fast and Flexible Multilegged Locomotion Using Learned Centroidal Dynamics,
Taesoo Kwon, **Yoonsang Lee**, Michiel van de Panne,
ACM Transactions on Graphics (SIGGRAPH 2020), Volume 39 Issue 4, Article No. 46, July 2020

Control of an Iguana Character Using Soft-Body Simulation,
Taesoo Kwon, Hoimin Kim, **Yoonsang Lee**
IEEE Access, Volume 6, Dec 2018

Performance-Based Biped Control using a Consumer Depth Camera,
Yoonsang Lee, Taesoo Kwon,
Computer Graphics Forum (Eurographics 2017), Volume 36 Issue 2, 387-395, May 2017

Push-Recovery Stability of Biped Locomotion,
Yoonsang Lee, Kyungho Lee, Soon-Sun Kwon, Jiwon Jung, Carol O'Sullivan, Moon Seok Park, Jehee Lee,
ACM Transactions on Graphics (SIGGRAPH Asia 2015), Volume 34 Issue 6, Article No. 180, November 2015

Locomotion Control for Many-Muscle Humanoids,
Yoonsang Lee, Moon Seok Park, Taesoo Kwon, Jehee Lee,
ACM Transactions on Graphics (SIGGRAPH Asia 2014), Volume 33 Issue 6, Article No. 218, November 2014

Data-Driven Biped Control,
Yoonsang Lee, Sungeun Kim, Jehee Lee,
ACM Transactions on Graphics (SIGGRAPH 2010), Volume 33 Issue 6, Article No. 218, November 2014

Conference Presentations & Invited Talks

Adaptive Tracking of a Single-Rigid-Body Character in Various Environments
Presentation, SIGGRAPH Asia 2023, Sydney, Australia, Dec. 2023

Character Animation Basics
Summer School Tutorial, KCGS 2022, Hongcheon, Korea Jun. 2022

Physics Fundamentals for Walking Simulation
Invited talk, SNU Orthopaedic Update(II): Pediatric Orthopaedics, SNUBH, Korea Jun. 2019

Performance-Based Biped Control using a Consumer Depth Camera
Presentation, Eurographics 2017, Lyon, France Apr. 2017

Make It Walk! : Locomotion Control
Invited talk, KCGS 2016, Sokcho, Korea Jul. 2016

Research on Physically-Based Control & Working at Samsung
Invited talk, CSE Colloquium, Hanyang University, Seoul, Korea May. 2016

Push-Recovery Stability of Biped Locomotion
Presentation, SIGGRAPH Asia 2015, Kobe, Japan — Nov. 2015

Locomotion Control for Many-Muscle Humanoids
Presentation, SIGGRAPH Asia 2014, Shenzhen, China — Dec. 2014

Data-Driven Biped Control
Presentation, KCGS 2010, Jeju, Korea — Aug. 2010
Presentation, SIGGRAPH 2010, Los Angeles, USA — Jul. 2010
Presentation, HCI Korea 2011, Pyeongchang, Korea — Jan. 2011

Physically Based Character Simulation
Presentation, HCI Korea 2010, Pyeongchang, Korea — Jan. 2010

Book Chapters

Ground Reaction Forces and Fundamental Physics for Gait Analysis. In Introduction to Motion Analysis, Youngchang Publishing Co. (Book chapter), 2019

Industry Experience

Samsung Electronics Co., Ltd. — Sep. 2014 – Feb. 2016
Senior Engineer. Developed DALi - Samsung's home-grown, open-source & cross-platform 3D UI framework. Based on OpenGL ES and aims for rich and high-performance UI applications for embeded systems. Part of Tizen native API since Tizen 2.4.

Neowiz Corp. — Jan. 2004 – Dec. 2005
Software Developer. Developed Tarchy - an instant messenger for Neowiz's community service, which occupied a third position in the domestic market.

Neoage Corp. — Jan. 2003 – Dec. 2003
Software Developer

Samsung Advanced Institute of Technology — Jan. 2002 – Feb. 2002
Software Intern

Academic Services

SIGGRAPH Asia - Technical Communications and Posters Committee — 2025

SIGGRAPH Asia - Emerging Technology Committee — 2023, 2022

SIGGRAPH Asia - Organizing Committee, Technical Paper Interactive Discussion Coordinator — 2022

SIGGRAPH Asia - Session Chair — 2023, 2022

Pacific Graphics (PG) - Program Committee — 2024–2025, 2019–2021

Pacific Graphics (PG) - Session Chair — 2021

Computational Visual Media - Program Committee — 2024

Computational Visual Media - Session Chair 2024

Compute Animation and Social Agents (CASA) - Program Committee 2023, 2021

CAD/Graphics - Program Committee 2025

Korea Computer Graphics Society (KCGS) - International Director 2024–2025

Korea Computer Graphics Society (KCGS) - Journal Editorial Board 2024–2025, 2016–2017

Korea Computer Graphics Society (KCGS) - Conference Program Committee 2023, 2022, 2018

Korea Computer Graphics Society (KCGS) - Conference Organizing Committee 2021, 2020

Korea Computer Graphics Society (KCGS) - Conference Organizing Committee Co-chair 2025

Reviewer: SIGGRAPH(2023,2022,2015), SIGGRAPH Asia(2023,2022,2014,2013), TVCG(2025,2020,2017), Eurographics(2024, 2017), Pacific Graphics(2024,2023,2021,2020,2019), CVM(2024), CoRL(2025), Autonomous Robots(2023), CASA(2023,2021), Graphical Models(2024), CG&A(2021), IEEE Access(2022), etc.

Campus Services

Chair of the Department of Computer Science (Graduate Program), Hanyang University
. Sep. 2023 – Feb. 2024

Open Source Projects

Personal projects:

QFEnter (`https://github.com/yssl/QFEnter`)

- A vim plug-in to open a Quickfix item in a selected window.

VIntSearch (`https://github.com/yssl/VIntSearch`)

- A vim plug-in providing an integrated interface across various types of searches.

AutoCWD.vim (`https://github.com/yssl/AutoCWD.vim`)

- Auto current working directory update system for vim (vim plug-in).

TWcmd.vim (`https://github.com/yssl/TWcmd.vim`)

- Vim's wincmd-style extended tab / window moving commands (vim plug-in).

SequentialLauncher.py (`https://github.com/yssl/SequentialLauncher.py`)

- Automates launches of any command line interface processes and logs all their output to a file.

PACERs (`https://github.com/yssl/PACERs`)

- Programming Assignments Compiling, Executing, and Reporting system

At work:

DALi (`https://developer.tizen.org/dev-guide/2.4b/org.tizen.ui.practices/html/native/dali/`)

- Samsung's home-grown, open-source & cross-platform 3D UI framework. Based on OpenGL ES and aims for rich and high-performance UI applications for embeded systems. Part of Tizen native API since Tizen 2.4. Currently hosted in the Tizen open-source repository server (review.tizen.org).

Honors and Awards

Excellence in Teaching Award (*Lecture: Computer Graphics*), Hanyang University, 2024.

Best Teacher Award (*Lecture: Computer Graphics*), Hanyang University, 2020.

Best Lecture Award (*Lecture: C Programming*), Kwangwoon University, 2017.

Lecture & Research Scholarship, Seoul National University, 2007, 2011.

Natural Science and Engineering Graduate Scholarship, Korea Science and Engineering Foundation, 2008.

Superior Academic Performance Scholarship, Seoul National University, 2007

Granted Patents

이동 경로에 따라 캐릭터의 동작 정보를 생성하는 방법 및 컴퓨터 장치 (Method for Generating Motion Data of a Character Based on a Movement Path and Computer Apparatus)
Yoonsang Lee, Jeongmin Lee.

- Korea Registeration, 10-2640247, 2024/02/20.

강화학습모델을 이용한 보행 동작 정보 출력 방법 및 서비스 장치 (Method for Outputting Walking Motion Data Using a Reinforcement Learning Model and Service Apparatus)
Yoonsang Lee, Gyoo-Chul Kang.

- Korea Registeration, 10-2611126, 2023/12/04.

목표 위치로 이동하는 캐릭터의 동작 정보 생성 방법 및 컴퓨터 장치 (Method for Generating Motion Data of a Character Moving Toward a Target Position and Computer Apparatus),
Yoonsang Lee, Jeongmin Lee.

- Korea Registeration, 10-2580138, 2023/09/14.

바이페드 제어 장치 및 방법 (Biped Control Apparatus and Method),
Yoonsang Lee.

- Korea Registeration, 10-1895331, 2018/08/30.

APPARATUS AND METHOD FOR CONTROLLING A DATA-BASED BIPED,
Yoonsang Lee, Jehee Lee.

- US Registration, 09336182, 2016/05/10.

데이터 기반 바이페드 제어 장치 및 방법 (Data-Driven Biped Control Apparatus and Method),
Yoonsang Lee, Jehee Lee.

- Korea Registration, 10-1200191, 2012/11/05.