Sehoon Ha

CONTACT INFORMATION

Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA, 15213, USA

Mobile: +1-404-583-8555
E-mail: sehoon.ha@gmail.com
Homepage: http://sehoonha.com/

RESEARCH INTERESTS

Computer Graphics (Physics-based Animation, Fabrication),
Robotics (Design Optimization, Optimal Control, Deep Reinforcement Learning).

EDUCATION

Georgia Institute of Technology Atlanta, Georgia

Ph.D. in Computer Science, Aug, 2015

- Thesis: *Developing agile motor skills on virtual and real humanoids*
- Advisor: Dr. C. Karen Liu
- Area of Study: Computer Graphics

Korea Advanced Institute of Science and Technology Daejon, South Korea

B.S. in Computer Science, Aug. 2009

- *Summa Cum Laude*, GPA: 4.0/4.3

EMPLOYMENT HISTORY

Carnegie Mellon University Dec. 2017 –
Postdoctoral Fellow. Advisor: Jessica K. Hodgins

Disney Research Pittsburgh Sep. 2015 –Nov. 2017
Associate Research Scientist. Advisor: Katsu Yamane

Disney Research Pittsburgh May. 2014 – Aug. 2014
Research Intern. Advisor: Katsu Yamane

Adobe Creative Technology Lab May. 2012 – Aug. 2012
Research Intern. Advisors: J. McCann and J. Popović

Georgia Institute of Technology, College of Computing Aug. 2010 – Aug. 2015
Graduate Research Assistant. Advisor: C. Karen Liu

REFERRED JOURNAL PUBLICATIONS

[J4] Y.S. Song, **S. Ha**, H. Hsu, L.H. Ting, and C. K. Liu, *Stair Negotiation Made Easier Using Novel Interactive Energy-Recycling Assistive Stairs (IF: 2.806)*, In *PLoS One*, 2017

[J3] S. Ha and C. K. Liu, *Iterative Training Of Dynamic Skills Inspired By Human Coaching Techniques*, In *ACM Transactions on Graphics (IF: 4.088)*, 2014

[J2] S. Ha, J. McCann, C. K. Liu, and J. Popović, *Physics Storyboards*, In *Computer Graphics Forum (Proceedings of Eurographics, IF:1.611)*, 2013

[J1] S. Ha, Y. Ye, and C. K. Liu, *Falling and Landing Motion Control for Character Animation*, In *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia, IF:4.088)*, 2012

SUBMITTED JOURNAL MANUSCRIPTS

[SJ2] S. Ha, S. Coros, A. Alspach, J. Kim, and K. Yamane, *Computational Co-Optimization of Design Parameters and Motion Trajectories for Robotic Systems*, In *International Journal of Robotics Research (IF: 5.301), 2017* **(Invited, 30% extension of [C6])**

[SJ1] S. Ha, S. Coros, A. Alspach, J. Bern, J. Kim, K. Yamane, *Computational Design of Robotic Devices from High-Level Motion Specifications*, In *IEEE Transactions on Robotics (IF: 4.036), 2017*

REFERRED CONFERENCE PUBLICATIONS

[C7] Visak C.V. Kumar, **S. Ha**, C. Karen Liu, *Learning a Unified Control Policy for Safe Falling*, In *IEEE International Conference on Intelligent Robots and Systems (IROS), 2017*

[C6] S. Ha, S. Coros, A. Alspach, J. Kim, and K. Yamane, *Joint Optimization of Robot Design and Motion Parameters using the Implicit Function Theorem*, In *Proceedings of Robotics: Science and Systems (RSS), 2017* **Best Paper Finalist (Top 3)**

[C5] S. Ha, S. Coros, A. Alspach, J. Kim, and K. Yamane, *Task-based Limb Optimization for Legged Robots*, In *IEEE International Conference on Intelligent Robots and Systems (IROS), 2016*

[C4] S. Ha and C. K. Liu, *Evolutionary Optimization for Parameterized Whole-body Dynamic Motor Skills*, In *IEEE International Conference on Robotics and Automation (ICRA), 2016*

[C3] S. Ha and C. K. Liu, *Multiple Contact Planning for Minimizing Damage of Humanoid Falls*, In *IEEE International Conference on Intelligent Robots and Systems (IROS), 2015*

[C2] S. Ha and K. Yamane, *Reducing Hardware Experiments for Model Learning and Policy Optimization*, In *IEEE International Conference on Robotics and Automation (ICRA), 2015*

[C1] S. Ha, Y. Bai, and C. K. Liu, *Human Motion Reconstruction from Force Sensors*, In *ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA), 2011*

PATENTS

[P1] S. Ha, S. Coros, K. Yamane, A. Alspach, J. Kim, *Computational Design Of Robots from High-level Task Specifications*, Filing Date: 10/23/2016.

THESIS

[PHDTHESIS] S. Ha, *Developing Agile Motor Skills on Virtual and Real Humanoids*, College of Computing, Georgia Institute of Technology

---

TEACHING EXPERIENCE

Guest Lecturer, Simulation Methods for Animation and Digital Fabrication (CS15-467 at Carnegie Mellon University) Spring 2016

Guest Lecturer, Computer Animation (CS4496/CS7496 at Georgia Tech) Spring 2015

Awards, Fellowship and Honors

Nominated as a finalist in RSS Best Conference Paper Award (Top 3) **[C6]**	Jul. 2017
13th, ACM International Collegiate Programming Contest World Finals	Apr. 2006
Gold Prize, 5th Korea Collegiate Programming Olympiad	Nov. 2005
3rd, ACM International Collegiate Programming Contest Seoul Site	Nov. 2005
5th, ACM International Collegiate Programming Contest Seoul Site	Nov. 2004
4th, ACM International Collegiate Programming Contest Seoul Site	Nov. 2003
Korea Presidential Science Scholarship	Jul. 2003
Republic of Korea Army	Aug. 2006 – Jul. 2008

Professional Activities

Program Committee: Motion in Games (MIG)
Conference Review: SIGGRAPH, SIGGRAPH Asia, Eurographics, ICRA, IROS
Journal Review: Transactions on Graphics, Transactions on Robotics, PLOS One

Media Coverage

[M5] New Assistive Stairs Put a Spring in Your Step, In *Smithsonian*

[M4] These stairs recycle your energy so theyre easier to climb, In *PBS News Hours*

[M3] Robots Learning Judo Techniques to Fall Down Without Exploding, In *IEEE Spectrum*

[M2] An Algorithm Helps Robots Fall Safely, In *MIT Technology Review*

[M1] How to Fall Gracefully If Youre a Robot, In *Georgia Tech News Center*

Open Source Software

[S2] PyDART, A Python Binding of Dynamic Animation and Robotics Toolkit, *http://pydart2.readthedocs.io*

[S1] DART, Dynamic Animation and Robotics Toolkit, *http://dartsim.github.io/*

Languages

Fluent in Korean and English

Last update: Sep, 2017