

# Sehoon Ha

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## CONTACT INFORMATION

Disney Research  
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## RESEARCH INTERESTS

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

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## 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** Daejeon, South Korea

B.S. in Computer Science, Aug. 2009

- *Summa Cum Laude*, GPA: 4.0/4.3
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## EMPLOYMENT HISTORY

**Disney Research Pittsburgh** Sep. 2015 –  
Associate Research Scientist. Advisor: [Dr. Katsu Yamane](#)

**Disney Research Pittsburgh** May. 2014 – Aug. 2014  
Research Intern. Advisor: [Dr. 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.

**Georgia Institute of Technology, College of Computing** Aug. 2009 – Aug. 2010  
Visiting Researcher.

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## REFEREED JOURNAL PUBLICATIONS

**[J5] 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 *International Journal of Robotics Research (IF: 5.301)*, 2017 (**Invited, 30% extension of [C6]**)

**[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

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SUBMITTED  
JOURNAL  
MANUSCRIPTS

**[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

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REFEREED  
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

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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.

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THESIS

**[PHDTHESIS]** S. Ha, *Developing agile motor skills on virtual and real humanoids*, College of Computing, Georgia Institute of Technology

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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

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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

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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

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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*

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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/>

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LANGUAGES      Fluent in Korean and English

Last update: Sep, 2017