Minjae Lee

WWW: minjaeleecmu.github.io Email: mjlgg at alumni dot stanford dot edu

Research Interests

My research interests include computer graphics, physically-based simulation, computational biochemistry, & games

Education

Stanford University Sep 2013 - Dec 2018
Ph.D. in Department of Computer Science

Stanford University Jan 2017
M.S. in Department of Computer Science

Carnegie Mellon University Aug 2008 - Dec 2011
B.S. in School of Computer Science & Minor in Art
QPA: 3.80/4.00 Graduated with University Honors

Publications

[1] **A Robust Volume Conserving Method for Character-Water Interaction**
Minjae Lee, David Hyde, Kevin Li, Ronald Fedkiw
ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2019)

[2] **A Skinned Tetrahedral Mesh for Hair-Water Interaction**
Minjae Lee, Stanford University Ph.D. Dissertation (2018)

[3] **A Skinned Tetrahedral Mesh for Hair Animation & Hair-Water Interaction**
Minjae Lee, David Hyde, Michael Bao, Ronald Fedkiw
IEEE Transactions on Visualization and Computer Graphics (TVCG 2018)

[4] **Principles for Predicting RNA Secondary Structure Design Difficulty**
Jeff Anderson-Lee, Eli Fisker, Vineet Kosaraju, Michelle Wu, Justin Kong, Jeehyung Lee, **Minjae Lee**, Matthew Zada, Adrien Treuille, Rhiju Das, Eterna Players
Journal of Molecular Biology (JMB 2016)

[5] **Codimensional Non-Newtonian Fluids**
Bo Zhu, **Minjae Lee**, Ed Quigley, Ronald Fedkiw
ACM SIGGRAPH 2015, ACM TOG 34 (2015)

[6] **Efficient Denting & Bending of Rigid Bodies**
Saket Patkar, Mridul Aanjaneya, Aric Bartle, **Minjae Lee**, Ronald Fedkiw
ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA 2014)

[7] **RNA Design Rules from a Massive Open Laboratory**
Jeehyung Lee, Wipapat Kladwang, **Minjae Lee**, Daniel Cantu, Martin Azizyan, Hanjoo Kim, Alex Limpaecher, Sungroh Yoon, Adrien Treuille, Rhiju Das, EteRNA Participants
Proceedings of the National Academy of Sciences of the United States of America (PNAS Jan 2014)

[8] **SRDH: Specializing BVH Construction & Traversal Order Using Representative Shadow Ray Sets**
Nicolas Feltman, **Minjae Lee**, Kayvon Fatahalian
ACM SIGGRAPH/Symposium on High Performance Graphics (HPG 2012)

Press

Robert Lee Hotz, *Videogamers Are Recruited to Fight Tuberculosis and Other Ills.* **The Wall Street Journal.** May 3, 2016
John Bohannon, *For RNA Paper Based on a Computer Game, Authorship Creates an Identity Crisis.* **Science.** Feb 17, 2016
Joshua Seftel, & Tobey List, *NOVA Science NOW: What the Future Will Be Like.* **PBS / NOVA Science NOW.** Nov 22, 2012
Brendan I. Koerner, *New Videogame Lets Amateur Researchers Mess with RNA.* **Wired.** Jun 22, 2012
John D. Sutter, *Why Video Games Are Key to Modern Science.* **CNN.** Nov 2, 2011
John Markoff, *RNA Game Lets Players Help Find a Biological Prize.* **The New York Times.** Jan 10, 2011

Research Experience & Projects

Stanford University Sep 2013 - Dec 2018
Research Assistant advised by Professor Ronald Fedkiw
Researched coupling of hair and water simulation and rendering [1] [2] [3]. Researched codimensional non-newtonian fluids [5] and restricted deformations of rigid bodies [6].

Carnegie Mellon University Jan 2012 - May 2012
Research Assistant advised by Professor Kayvon Fatahalian
Researched specialization of BVH construction given the shadow ray sets [8].

Carnegie Mellon University Jan 2010 - May 2012
Research Assistant advised by Professor Adrien Treuille & Professor Rhiju Das
Researched RNA design rules by implementing crowdsourcing game, EteRNA [4] [7].

Work Experience

Oculus VR Jun 2017 - Sep 2017
Research Intern in Oculus Research
Graphics + Vision + VR.

eBay Inc. Jun 2014 - May 2015
Innovation Graphics Engineer Intern in PhiSix Innovation Team
Designed and implemented infrastructure for cloth simulation, rendering, and various pipelines.

Microsoft Corporation July 2012 - Aug 2013
Software Development Engineer in Visual Studio Team
Designed and implemented compiler features such as restrict pointer analysis, loop optimization, and parallelization.

Apple Inc. May 2011 - Aug 2011
Software Engineer Intern in iWork Productivity Team
Designed and implemented graphical effects for Keynote in iOS.

Samsung SDS Jun 2010 - July 2010
Mobile Software Engineer Intern in Unified Communications Team
Designed and implemented mobile software in Android platform.

Teaching Experience

Stanford University
Course Assistant for CS 248 Interactive Computer Graphics

Stanford University
Course Assistant for CS 148 Introduction to Computer Graphics & Imaging

Carnegie Mellon University
Course Assistant for 15-123 Effective Programming in C & Unix

Awards & Honors

MPC-VCC Summer Scholarship Jun 2015 - Aug 2015
Max Planck Center for Visual Computing and Communication

Samsung Scholarship Sep 2013 - May 2018
Samsung Scholarship

University Honors Dec 2011
Carnegie Mellon University

References

Ronald Fedkiw
Professor
Department of Computer Science
Stanford University
fedkiw at cs dot stanford dot edu

Rhiju Das
Associate Professor
Department of Biochemistry &, by courtesy, Department of Physics
School of Medicine
Stanford University

rhiju at stanford dot edu

Kayvon Fatahalian
Assistant Professor
Department of Computer Science
Stanford University
kayvonf at cs dot stanford dot edu

Adrien Treuille
CEO
Streamlit
adrient at google dot com