

Doyub Kim

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer Graphics, Simulation, and Machine Learning

WORK EXPERIENCES

- Apple** August 2016 to Present
Senior Machine Learning Engineer
- Computer Graphics / Computer Vision
 - Maps / Special Projects
- Uber** August 2015 to August 2016
Senior Engineer
- Maps Research: Machine-learned Maps
- Microsoft** June 2013 to July 2015
Senior Scientist Lead
- Streetside Experience for Windows 10 Maps app and SDK
- Software Development Engineer*
- Bing Maps Preview for Windows 8.1
- University of California, Berkeley** March 2012 to March 2013
Visiting Postdoc
- Data-driven physics animation
- Carnegie Mellon University** September 2011 to March 2013
Postdoc Fellow
- Data-driven physics animation
 - Real-time fluid simulation
- Seoul National University** April 2010 to August 2011
Postdoc Fellow
- Vortex method for highly-detailed fluid animation
 - Stochastic algorithm for multi-phase flow

EDUCATION

- Ph.D., Electrical and Computer Engineering** February 2010
Seoul National University, South Korea
- Thesis Topic: *Methods for Simulating and Visualizing Complex Fluid Flow*
 - Adviser: Professor Hyeong-Seok Ko
 - Area of Study: Computer Graphics (Physically-based Animation)
- B.S., Electrical Engineering** February 2005
Seoul National University, South Korea

PUBLICATIONS

- Doyub Kim.** *Fluid Engine Development.* AK Peters/CRC Press, 2016.
- Doyub Kim,** Woojong Koh, Rahul Narain, Kayvon Fatahalian, Adrien Treuille, and James F. O'Brien. *Near-exhaustive Precomputation of Secondary Cloth Effects.* ACM Transactions on Graphics (Proc. SIGGRAPH 2013), Vol 32, Issue 4, Article No. 87, 2013.
- Taekwon Jang, **Doyub Kim,** Mi You, Shiguang Liu, and Junyong Noh, *A Geometric Approach to Animating Thin Surface Features in SPH Water.* Computer Animation and Social Agents 2013
- Doyub Kim,** Seung Woo Lee, Oh-young Song, and Hyeong-Seok Ko. *Baroclinic Turbulence with Varying Density and Temperature.* IEEE Transactions on Visualization

and Computer Graphics, Vol 18, No. 9, pp. 1488-1495, September 2012.

Eunchan Jo, **Doyub Kim**, and Oh-young Song. *A new SPH fluid simulation method using ellipsoidal kernels*. Journal of visualization Vol. 14, No. 4, pp. 371-379, 2011

Doyub Kim, Oh-young Song, and Hyeong-Seok Ko. *A Practical Simulation of Dispersed Bubble Flow*. ACM Transactions on Graphics (Proc. SIGGRAPH 2010), Vol. 29, No. 4, 70, 2010.

Doyub Kim, Oh-young Song, and Hyeong-Seok Ko. *Stretching and Wiggling Liquids*. ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2009), Vol. 28, No. 5, 120, 2009.

Doyub Kim, Oh-young Song, and Hyeong-Seok Ko. *A Semi-Lagrangian CIP Fluid Solver without Dimensional Splitting*. Computer Graphics Forum (Proc. Eurographics), Vol. 27, No. 2, pp. 467-475, April 2008.

Oh-young Song, **Doyub Kim**, and Hyeong-Seok Ko. *Derivative Particles for Simulating Detailed Movements of Fluids*. IEEE Transactions on Visualization and Computer Graphics, Vol. 13, No. 4, pp. 711-719, July/August 2007.

CONFERENCE PUBLICATIONS **Doyub Kim** and Hyeong-Seok Ko. *Eulerian Motion Blur*. In Eurographics Workshop on Natural Phenomena. 2007.

Doyub Kim and Hyeong-Seok Ko. *Eulerian Motion Blur*. Poster at ACM SIGGRAPH/Eurographics Symposium on Computer Animations, 2007.

INVITED TALKS *Methods for Simulating and Visualizing Complex Fluid Flow*, Korea University, Seoul, Korea, September 1, 2010.

Multi-threading Fluid Simulation with OpenMP, Korea Computer Graphics Society Workshop, Seoul, Korea, November 26, 2009.

Fluid Simulation Seminar, Dongguk University, Seoul, Korea, August 24, 2009.

Stretching and Wiggling Liquids, Sejong University, Seoul, Korea, July 9, 2009.

AWARDS Korea Computer Graphics Society Young Researcher Award 2011

Samsung Electronics Humantech Thesis 2006

- Bronze Prize

Sony Korea Competition 2004

- Interactive Web Advertisement for Sony Korea
- Silver Prize

TEACHING EXPERIENCE **School of Electrical Engineering, Seoul National University**

Lecturer March to July 2010

- Computational Sciences: Theory and Practice 1
 - Responsible for 3 hour/week lecture where undergraduate students learn how to program basic numerical analysis applications with Python.
 - Undergraduate Interdisciplinary Program in Computational Sciences.
- Graphics Programming
 - Responsible for 3 hour/week lecture where graduate students learn how to program GPU-based applications.

Teaching Assistant September 2005 to December 2009

- Programming Methodology Laboratory
 - Responsible for 2 hour/week laboratory where junior and senior undergraduate students learn object oriented programming.
- Logic Circuit Design
- Data Structure and Algorithm

PAPER REVIEW **ACM SIGGRAPH**

- 2008, 2012, 2013, 2015, 2016, 2017

ACM SIGGRAPH Asia

- 2010, 2013, 2015, 2016

IEEE Transactions on Visualizations and Computer Graphics

- 2009, 2012, 2015, 2016, 2018

Eurographics

- 2016

Pacific Graphics

- 2011, 2012, 2013

The Visual Computer

- 2011, 2019