

Doyub Kim

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer Graphics, Simulation, and Machine Learning

WORK EXPERIENCES

Senior Software Engineer August 2016 to Present
[Apple, Maps](#)

Senior Engineer II March 2016 to August 2016
Senior Engineer August 2015 to March 2016
[Uber, Maps Research](#)

- Geospatial data processing and visualization
- Front-end mobile development

Senior Scientist Lead March 2014 to July 2015
Software Development Engineer June 2013 to February 2014
[Microsoft, Bing Maps](#)

- Streetside Experience for Windows 10 Maps app and SDK
- Bing Maps Preview for Windows 8.1

Visiting Postdoc March 2012 to March 2013
[Visual Computing Lab](#)
[University of California, Berkeley](#)

- Data-driven physics animation

Postdoc Fellow September 2011 to March 2013
[Robotics Institute](#)
[Carnegie Mellon University](#)

- Data-driven physics animation
- Real-time fluid simulation

Postdoc Fellow April 2010 to August 2011
[Automation and Systems Research Institute and Undergraduate Interdisciplinary Program in Computational Sciences](#)
[Seoul National University](#)

- Vortex method for highly-detailed fluid animation
- Stochastic algorithm for multi-phase flow

EDUCATION

Seoul National University, Seoul, Korea

Ph.D., Electrical and Computer Engineering, February 2010

- 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

- Thesis Topic: *Algorithms for Detecting Changes in XML Documents*

- Adviser: Professor Kyuseok Shim
- Area of Study: Database

PUBLICATIONS

Doyub Kim. *Fluid Engine Development*. 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

13th Samsung Electronics Humantech Thesis

- Bronze Prize, 2006

8th Sony Korea Competition

- Interactive Web Advertisement for Sony Korea
- Silver Prize, 2004

FUNDING

- Seoul National University Quality of Life Technology Project, March 2010 to August 2011
- Brain Korea 21 Project Post-doctoral Fellowship grant, September 2010 to August 2011

TEACHING
EXPERIENCE

School of Electrical Engineering
Seoul National University, Seoul, Korea

Lecturer

March to July 2010

- Computational Sciences: Theory and Practice 1
 - Spring 2011
 - 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
 - Spring 2010
 - Responsible for 3 hour/week lecture where graduate students learn how to program GPU-based applications.

Teaching Assistant

September 2006 to 2009

- Programming Methodology Laboratory
 - Autumn 2006, Spring 2007, Autumn 2008, Spring 2009, and Autumn 2009
 - Responsible for 2 hour/week laboratory where junior and senior undergraduate students learn object oriented programming.
- Logic Circuit Design
 - Autumn 2007
- Data Structure and Algorithm
 - Autumn 2005

PAPER REVIEW

ACM SIGGRAPH 2008, 2012, 2013, 2015, 2016, 2017 (ACM Transactions on Graphics)
ACM SIGGRAPH Asia 2010, 2013, 2015, 2016 (ACM Transactions on Graphics)
IEEE Transactions on Visualizations and Computer Graphics 2009, 2015, 2016

CITIZENSHIP

Republic of Korea (South) and U.S.A.