

## Nadir Akinci

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### A. Education & Training

Atilim University / Turkey	Computer Engineering	BSc, 2007
University of Freiburg / Germany	Computer Science	MSc, 2010
University of Freiburg / Germany	Computer Science	PhD, 2014
M.I.T. Geonumerics Lab	Geomechanics	Postdoc, 2014, 2015

### B. Research & Professional Experience

2015-..... Technical Director, Neutrino Dynamics, Los Angeles, CA, USA

Responsible for the development of Neutrino, a general purpose simulation and visualization environment. Neutrino Dynamics is composed of a group of diverse scientific research team distributed around the world. The main reason why Neutrino exists is to give research organizations, academia, various industries a full-featured simulation and visualization environment for the most demanding tasks and problems. Neutrino has proven its versatility and efficiency in many diverse sectors, including energy research, environmental sciences, visual effects, astrophysics, aerodynamics, explosion planning, hydro-fracturing and space exploration.

2014-2015 Postdoctoral associate, M.I.T., Cambridge, MA, USA

Joint research with TOTAL to investigate fracture initiation and propagation in unconventional production simulation. By applying the SPH method to the problem, explored a new approach to discrete modelling of rock fracture. Besides that, did joint research with SHELL about applying SPH method to the problem of rouge wave interaction with offshore structures.

2010-2014 Research assistant and PhD candidate, Computer Graphics Group, University of Freiburg, Freiburg, BW, Germany

My research mainly focused on creating novel formulations and algorithms for the versatile handling of different types of interfaces with SPH. The covered interfaces include: fluid-solid, fluid-elastic, fluid-air, all with two-way coupling. Besides, I also researched novel surface reconstruction techniques, secondary simulation algorithms, and rendering techniques. I also designed and coded a simulation framework, where many of my colleagues have used in their research. Throughout my employment, I advised MSc students and attended lab sessions of computer graphics lectures as a teaching assistant.

2009-2010

Student assistant and MSc candidate, Computer Graphics Group,  
University of Freiburg, Freiburg, BW, Germany

Developed a novel boundary handling technique for SPH. Designed and coded a new software framework for SPH simulations, which was used by PhD students.

### C. Publications

1. L. Lin, N. T. Dihn, R. Sampath, N. Akinci, "A COMPUTATIONAL STUDY OF THIN FILM DYNAMICS ON MICRO-STRUCTURED SURFACES", *Proceedings of the ASME 2016 Summer Heat Transfer Conference, 5th Joint US-European Fluids Engineering Summer Meeting, and 14th International Conference on Nanochannels, Microchannels and Minichannels HTFEICNMM2016* July 10-14, 2016, Washington, DC, USA.
2. R. Sampath, N. Montanari, N. Akinci, S. Prescott, C. Smith, "LARGE-SCALE SOLITARY WAVE SIMULATION WITH IMPLICIT INCOMPRESSIBLE SPH", *Journal of Ocean Engineering and Marine Energy*, 2016.
3. N. Akinci, G. Akinci, M. Teschner. "VERSATILE SURFACE TENSION AND ADHESION FOR SPH FLUIDS", *ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2013)*, vol. 32, no. 6, pp. 182:1-182:8, November 2013.
4. N. Akinci, A. Dippel, G. Akinci, M. Teschner. "SCREEN SPACE FOAM RENDERING", *Journal of WSCG, VOL.21, No.03, PP.173-182, 2013*
5. G. Akinci, N. Akinci, E. Oswald, M. Teschner. "ADAPTIVE SURFACE RECONSTRUCTION FOR SPH USING 3-LEVEL UNIFORM GRIDS", *WSCG proceedings*, pp.195-204, 2013
6. N. Akinci, J. Cornelis, G. Akinci, M. Teschner. "COUPLING ELASTIC SOLIDS WITH SPH FLUIDS", *Journal of Computer Animation and Virtual Worlds (Proc. CASA 2013)*, 24: 195–203. doi: 10.1002/cav.1499
7. N. Akinci, M. Ihmsen, G. Akinci, B. Solenthaler, M. Teschner. "VERSATILE RIGID-FLUID COUPLING FOR INCOMPRESSIBLE SPH", *ACM Transactions on Graphics (Proc. SIGGRAPH 2012)*, vol. 31, no. 4, pp. 62:1-62:8, July 2012.
8. M. Ihmsen, N. Akinci, G. Akinci, M. Teschner. "UNIFIED SPRAY, FOAM AND BUBBLES FOR PARTICLE-BASED FLUIDS", *The Visual Computer (Proc. CGI 2012)*, Volume 28, Issue 6-8, pp 669-677, 2012, doi: 10.1007/s00371-012-0697-9
9. G. Akinci, M. Ihmsen, N. Akinci, M. Teschner. "PARALLEL SURFACE RECONSTRUCTION FOR PARTICLE-BASED FLUIDS", *Computer Graphics Forum*, vol. 31, no. 6, pp. 1797-1809, 2012, doi: 10.1111/j.1467-8659.2012.02096.x. (Presented at Eurographics 2013)
10. G. Akinci, N. Akinci, M. Ihmsen, M. Teschner. "AN EFFICIENT SURFACE RECONSTRUCTION PIPELINE FOR PARTICLE-BASED FLUIDS", *Proc. VRIPHYS, Darmstadt, Germany*, pp. 61-68, Dec. 6-7, 2012.
11. M. Ihmsen, N. Akinci, M. Becker, M. Teschner. "A PARALLEL SPH IMPLEMENTATION ON MULTI-CORE CPUS", *Computer Graphics Forum*, vol. 30, no. 1, pp. 99-112, 2011, doi: 10.1111/j.1467-8659.2010.01832.
12. M. Ihmsen, N. Akinci, M. Gissler, M. Teschner. "BOUNDARY HANDLING AND ADAPTIVE TIME-STEPPING FOR PCISPH", *Proc. VRIPHYS, Copenhagen, Denmark*, pp. 79-88, Nov 11-12, 2010.

**D. Synergistic Activities:** I serve as the lead architect of the Neutrino General Purpose Simulation and Visualization Framework.