

# Abtin Rahimian

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## § Employment

Assistant Professor Aug 2017 – Present  
Department of Computer Science  
University of Colorado, Boulder, CO

Postdoctoral Research Associate Feb 2014 – Aug 2017  
Courant Institute of Mathematical Sciences  
New York University, New York, NY

## § Education

PhD in Computational Science and Engineering 2008 – 2012  
Georgia Institute of Technology, Atlanta, GA

Master of Science in Mathematics 2008 – 2010  
Georgia Institute of Technology, Atlanta, GA

Master of Science in Mechanical Engineering 2006 – 2008  
University of Pennsylvania, Philadelphia, PA

Bachelor of Science in Mechanical Engineering (*with Honors*) 1999 – 2004  
University of Tehran, Tehran, Iran

## § Honors and awards

Recipient of the Gordon Bell prize 2010  
For outstanding achievement in high-performance computing applications  
ACM/IEEE Supercomputing Conference (SC10), New Orleans, LA

## § Peer-reviewed publications

- [ 2017 ] A. Rahimian, A. Barnett, and D. Zorin. Ubiquitous evaluation of layer potentials using quadrature by kernel-independent expansion. *BIT Numerical Mathematics* (Nov. 2017). DOI: [10.1007/s10543-017-0689-2](https://doi.org/10.1007/s10543-017-0689-2). arXiv: [1612.00977](https://arxiv.org/abs/1612.00977).
- [ 2017 ] L. Lu, A. Rahimian, and D. Zorin. Contact-aware simulations of particulate Stokesian suspensions. *Journal of Computational Physics* 347C (Nov. 2017), pp. 160–182. DOI: [10.1016/j.jcp.2017.06.039](https://doi.org/10.1016/j.jcp.2017.06.039). arXiv: [1612.02057](https://arxiv.org/abs/1612.02057).
- [ 2017 ] J. Panetta, A. Rahimian, and D. Zorin. Worst-case Stress Relief for Microstructures. *ACM Transactions on Graphics* 36.4 (July 2017), 122:1–122:16. DOI: [10.1145/3072959.3073649](https://doi.org/10.1145/3072959.3073649).
- [ 2017 ] E. Nazockdast, A. Rahimian, D. Needleman, and M. Shelley. Cytoplasmic flows as signatures for the mechanics of mitotic positioning. *Molecular Biology of the Cell* (Mar. 2017), mbc-E16. DOI: [10.1091/mbc.E16-02-0108](https://doi.org/10.1091/mbc.E16-02-0108). arXiv: [1511.02508](https://arxiv.org/abs/1511.02508).
- [ 2017 ] E. Nazockdast, A. Rahimian, D. Zorin, and M. Shelley. A fast platform for simulating flexible fiber suspensions applied to cell mechanics. *Journal of Computational Physics* 329 (Jan. 2017), pp. 173–209. DOI: [10.1016/j.jcp.2016.10.026](https://doi.org/10.1016/j.jcp.2016.10.026). arXiv: [1602.05650](https://arxiv.org/abs/1602.05650).

- [ 2015 ] A. Rahimian, S. K. Veerapaneni, D. Zorin, and G. Biros. Boundary integral method for the flow of vesicles with viscosity contrast in three dimensions. *Journal of Computational Physics* 298 (Oct. 2015), pp. 766–786. DOI: [10.1016/j.jcp.2015.06.017](https://doi.org/10.1016/j.jcp.2015.06.017).
- [ 2011 ] S. K. Veerapaneni, A. Rahimian, G. Biros, and D. Zorin. A fast algorithm for simulating vesicle flows in three dimensions. *Journal of Computational Physics* 230.14 (June 2011), pp. 5610–5634. DOI: [10.1016/j.jcp.2011.03.045](https://doi.org/10.1016/j.jcp.2011.03.045).
- [ 2011 ] G. Ghigliotti, A. Rahimian, G. Biros, and C. Misbah. Vesicle migration and spatial organization driven by flow line curvature. *Physical Review Letters* 106.2 (Jan. 2011), p. 028101. DOI: [10.1103/PhysRevLett.106.028101](https://doi.org/10.1103/PhysRevLett.106.028101).
- [ 2010 ] A. Rahimian, I. Lashuk, S. Veerapaneni, A. Chandramowlishwaran, D. Malhotra, L. Moon, R. Sampath, A. Shringarpure, J. Vetter, R. Vuduc, D. Zorin, and G. Biros. Petascale direct numerical simulation of blood flow on 200K cores and heterogeneous architectures. *Proceedings of the 2010 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis*. SC '10. **Gordon Bell prize recipient**. Washington, DC, USA: IEEE Computer Society, Nov. 2010, pp. 1–11. DOI: [10.1109/SC.2010.42](https://doi.org/10.1109/SC.2010.42).
- [ 2010 ] A. Rahimian, S. K. Veerapaneni, and G. Biros. Dynamic simulation of locally inextensible vesicles suspended in an arbitrary two-dimensional domain, a boundary integral method. *Journal of Computational Physics* 229.18 (Sept. 2010), pp. 6466–6484. DOI: [10.1016/j.jcp.2010.05.006](https://doi.org/10.1016/j.jcp.2010.05.006).
- [ 2008 ] A. Rahimian, S. K. Veerapaneni, D. Zorin, and G. Biros. Dynamics of inextensible vesicles suspended in a confined two-dimensional Stokes flow. *Proceedings of the 2008 Frontiers of Applied and Computational Mathematics*. New Jersey Institute of Technology, NJ, 2008.
- [ 2005 ] A. Rahimian, A. Najafi, and K. Sadeghy. On the use of polymetric additives for cavitation suppression. *Proceedings of the 13th Annual International Mechanical Engineering Conference*. Isfahan University of Technology, Isfahan, Iran, 2005.