

# AMIR GHOLAMI

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## EDUCATION

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- University of California, Berkeley** *July 2017- Present*  
PostDoctoral Research Fellow, ASPIRE Lab, EECS Department  
(Adviser: Prof. Kurt Keutzer)
- The University of Texas at Austin** *June 2017*  
Phd, Computational Science and Engineering Mathematics,  
GPA 4.00/4.00 (Adviser: Prof. G. Biros)
- Master of Science in Mechanical Engineering *2014*  
GPA 4.00/4.00
- **Tehran Polytechnic (Amirkabir University)** *2011*  
Bachelor of Science in Aerospace Engineering  
GPA 3.89/4.00 (Top student out of 55)

## EXPERIENCE

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- NVIDIA** Summer 2016  
*CUDA Library/Deep Learning Software Engineer Intern* *Santa Clara, CA*
- Advanced Micro Devices (AMD)** Summer 2015  
*Software Engineer Intern at AMD Compute Library Team* *Austin, TX*
- Institute for Computational Engineering and Sciences** 2011-Present  
*Graduate Research Assistant* *Austin, TX*
- Thermodynamics Lab, Tehran Polytechnic** 2007-2011  
*Undergraduate Research Assistant* *Tehran, IR*

## HONORS AND AWARDS

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- **Best Student Paper finalist**, ACM/IEEE Supercomputing conference (SC'17) *2017*
- Inducted as a member of Phi Kappa Phi honor society and full member of Sigma Xi *2016*
- **Gold medal** in ACM Student Research Competition at SC'15 *2015*
- **Best Student Paper finalist**, ACM/IEEE Supercomputing conference (SC'14) *2014*
- **First place** in Broader Engagement programming challenge at SC'14 *2014*
- **Second place** in 2014 TACC-BP America parallel programming contest *2014*
- **Student Employee Excellence**, UT Austin *2014*
- Graduate school's Professional Development Award, UT Austin *2013*
- **Best B.Sc. thesis of the year** in Aerospace engineering department *2011*
- Graduated as top student (out of 55) in my undergraduate studies *2011*
- Selected as *Outstanding Student*, Tehran Polytechnic *2010*
- Member of *Honorary Student* society, Tehran Polytechnic *2010*

## PUBLICATIONS

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### Journal/Proceedings

- A. Gholami, A. Mang, K. Scheufele, C. Davatzikos, M. Mehl, and G. Biros. A framework for scalable biophysics-based image analysis. *Proceedings of ACM/IEEE SuperComputing Conference (SC'17)*, 2017 (**Best Student Paper Finalist**). [\[PDF\]](#)
- A. Mang, A. Gholami, C. Davatzikos, and G. Biros. PDE constrained optimization in medical image analysis. *Optimization and Engineering*, 2017 (in review)
- A. Mang, A. Gholami, and G. Biros. Distributed-memory large-deformation diffeomorphic 3D image registration. *Proceedings of ACM/IEEE SuperComputing Conference (SC16)*, 2016. [\[PDF\]](#)
- D. Malhotra, A. Gholami, and G. Biros. A volume integral equation stokes solver for problems with variable coefficients. *Proceedings of ACM/IEEE SuperComputing Conference (SC14)*, 2014 (**Best Student Paper Finalist**). [\[PDF\]](#)
- A. Gholami, D. Malhotra, H. Sundar, and G. Biros. FFT, FMM, or Multigrid? A comparative study of state-of-the-art Poisson solvers. *SIAM Journal of Scientific Computing (accepted)*, 2015. [\[PDF\]](#)
- A. Gholami, A. Mang, and G. Biros. An inverse problem formulation for parameter estimation of a reaction-diffusion model of low grade gliomas. *Journal of mathematical biology*, 72:409–433, 2015. [\[PDF\]](#)

### Talks

- A. Mang, A. Gholami, and G. Biros. Parallel algorithms for PDE-constrained optimization problems with hyperbolic constraints. *Minisymposium at SIAM CSE, Atlanta, GA, USA*, 2017.
- A. Gholami and G. Biros. On preconditioning Newton method for PDE constrained optimization problems. *Minisymposium at SIAM Conference on Imaging Sciences, Albuquerque, NM, USA*, 2016.
- A. Gholami and G. Biros. Challenges for exascale scalability of elliptic solvers using a model Poisson solver and comparing state-of-the art methods. *13th U.S. National Congress on Computational Mechanics, San Diego*, 2015.
- A. Gholami and G. Biros. Parameter estimation for malignant brain tumors. *Minisymposium at SIAM CSE, Salt Lake, Utah, USA*, 2015.
- A. Gholami and G. Biros. A numerical algorithm for biophysically-constrained parameter estimation for tumor modeling and medical images analysis. *12th U.S. National Congress on Computational Mechanics, Raleigh, NC, USA*, 2013.
- A. Gholami and G. Biros. Image-driven inverse problem for estimating initial distribution of brain tumor modeled by advection-diffusion-reaction equation. *SIAM Annual Meeting, San Diego, CA, USA*, 2013.

### Posters

- A. Gholami and G. Biros. AccFFT: A New Parallel FFT Library for CPU and GPU Architectures. *ACM/IEEE Supercomputing (SC15), Austin, TX (Gold medal at ACM Student Research Competition)*, 2015.
- A. Gholami and G. Biros. Inverse problem method for parameter estimation of a reaction-diffusion model of low grade gliomas. *13th U.S. National Congress on Computational Mechanics, San Diego, 2015*.
- A. Gholami and G. Biros. A numerical algorithm for biophysically-constrained parameter estimation for tumor modeling and data assimilation with medical images. *Poster at 12th U.S. National Congress on Computational Mechanics, Raleigh, NC, USA*, 2013.
- A. Gholami and G. Biros. Fast algorithms for inverse problems of reaction-diffusion-advection equations. *SIAM Annual Meeting, Minneapolis, MN, USA*, 2012.
- A. Gholami and G. Biros. Image-driven inverse algorithms for brain tumor modeling and diagnosis. *ASME Congress and Exposition (IMECE2012), Houston, TX, USA*, 2012.