

BABAK POURSAARTIP

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Work status	Senior Member of Technical Staff, SDE and Team Lead at AI Group, AMD - Austin, TX	
Education	<i>Postdoctoral fellow</i> in Scientific Software Development Oden Institute for Computational Engineering and Sciences, UT Austin	05/17-06/19
	<i>Doctor of Philosophy</i> in Computational Sciences The University of Texas at Austin GPA: 4.0/4.0	01/10-05/17
	<i>Master of Science</i> in Structural Engineering Amirkabir University of Technology, Tehran	09/03-11/05
	<i>Bachelor of Science</i> in Civil Engineering (<i>Graduated with highest honors</i>) Shahid Chamran University of Ahvaz	09/99-07/03
Technical skills	<i>Programming:</i> C/C++, Python, Shell Scripts <i>Parallel programming:</i> HIP/CUDA, MPI, OpenMP, Multi-threaded programming <i>Programming tools:</i> CI, git, gprof, gdb, OOP <i>Expertise:</i> GPU architecture, Kernel tuning/optimization, GEMM, rocBLAS/cuBLAS, hipBLASLt/cuBLASLt, Scrum master, Project management, Linear algebra, Inverse problem, Finite element analysis, Fluid dynamics, Numerical solution of PDEs	
Professional experience	<i>Artificial Intelligence Group, AMD</i> <ul style="list-style-type: none">Leading a team of 10 technical professionals in hipBLASLt for tuning GEMM kernels, ensuring project goals and deadlines are metLeading the planning, organization, and execution of Agile scrum standups to drive team productivity and project successTraining hipBLASLt users on features and functionalityCollaborating with internal teams including pytorch, providing the necessary resources and guidance to profile and optimize various applications, including LLM and ML modelsProviding technical support and guidance to customers, ensuring seamless integration and optimal use of hipBLASLtDeveloping, debugging, and tuning GPU algorithms and kernels for GEMM and tensor contraction in open-source libraries: <i>Tensile</i>, <i>rocBLAS</i>, and <i>hipBLASLt</i>Benchmarking, profiling and optimizing C++/Python code to improve the performance on single and multi-GPU systemsCreating and updating instructional documents and manuals to enhance customer understanding and utilization of hipBLASLtMaintaining <i>Tensile</i> github repo and reviewing PRs for ROCm releases	08/21-present

Professional experience (continue...)	Research and Development Engineer II, HFSS group, Ansys	11/20-08/21
	<ul style="list-style-type: none"> • Developed and debugged C++ software for various numerical simulations • Simulated 3D electromagnetic model using finite element analysis 	
	Research Geophysicist at CGG	06/19-6/20
	<ul style="list-style-type: none"> • Modified and developed seismic imaging software for oil exploration • Pre-processed seismic data, including denoise, deghost 	
	Academic research	09/03-06/19
	<ul style="list-style-type: none"> • Parallel simulation of network channel using OMP/MPI • Numerical solution of Shallow Water Equations using finite volume method • Developed a parallel spectral/finite element code for large-scale simulation of waves • Developed a mesh partitioner interface using METIS • Implemented unstructured 2D/3D elements for high-quality mesh generation in complex geometries • Formulated an inverse medium methodology for geo-technical site characterization • Applied explicit 2nd-order, 4th-order, and adaptive Runge-Kutta time integration • Constructed 2D/3D Perfectly-Matched-Layers elements for absorbing boundaries • Developed a FEM software for linear/nonlinear, dynamic analysis of structures including fluid-structure interactions, 	
Work history	SMTS - Software Development Engineer at AMD - Austin, TX	08/2024- present
	MTS - Software Development Engineer at AMD - Austin, TX	08/2021-08/2024
	R&D Engineer II at Ansys - San Jose, CA	11/2020-08/2021
	Research Geophysicist/Software developer at CGG - Houston, TX	06/2019-06/2020
	Postdoc/Lecturer at Oden Institute for Computational Eng. and Sciences	06/2017-06/2019
	Graduate Research Assistant/TA/Assistant Instructor at UT Austin	01/2010-05/2017
	Structural engineer and finite element analyst	01/2006-01/2010
	Master's student in Structural Eng. at Amirkabir University of Technology	09/2003-11/2005
	Bachelor's student in Civil Eng. at Shahid Chamran University	09/1999-07/2003
Selected publications Google Scholar	6. Poursartip B , Fathi A, Tassoulas JL <i>Large scale simulation of seismic waves: a review</i> Soil Dynamics and Earthquake Eng. 2020;129:1059–1079	
	5. Poursartip B , Kallivokas LF. <i>Modal dimensionality effects on the amplification of seismic waves</i> . Soil Dynamics and Earthquake Eng. 2018;113:572–592	
	4. Poursartip B , Fathi A, Kallivokas LF. <i>Seismic wave amplification by topographic features: a parametric study</i> . Soil Dynamics and Earthquake Eng., 217;92:503–527	
	3. Fathi A, Poursartip B , Kallivokas LF, Stokoe KH. <i>Three-dimensional P- and S-wave velocity profiling of geotechnical sites using full-waveform inversion driven by field data.</i> , Soil Dynamics and Earthquake Eng., 2016;87: 63–81	
	2. Fathi A, Kallivokas LF, Poursartip B . <i>Full-waveform inversion in three-dimensional PML-truncated elastic media</i> . Computer Methods in Applied Mechanics and Engineering, 2015;296:39-72	
	1. Fathi A, Poursartip B , Kallivokas LF. <i>Time-domain hybrid formulations for wave simulations in three-dimensional PML-truncated heterogeneous media</i> . International Journal for Numerical Methods in Engineering, 2014;101:165–198	