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Amir R. Baserinia

"The best way to predict the future is to create it."

Skills Summary

- Software developer with a long track record in computational physics, computational geometry, 3D graphics, simulation, robotics, and high-performance computing.

Work Experience

Sep 2020 – Present **Principal Software Engineer**, *Atomic Machines*, Berkeley, CA.
Atomic Machine is building a fully-automated distributed platfrom for fabricating MEMS devices. I was the system architect and also the only software developer, responsible for:
- Designing a distributed even-driven software to automate the operation of a robotic micro-factory;
- Hardware control including motors (linear and stepper), sensors, actuators, and vision;
- User interfaces (both GUI and CLI);
- Job scheduling and simulation of the platform.

Sep 2017 – Aug 2020 **Mechanical Simulation R&D Engineer**, *Plethora*, San Francisco, CA.
Plethora is building the factory of the future by automating the CNC machining process for small volumes and fast turnaround. My role was:
- Design and development of the computational geometry engine for DFM analysis, used on the company website;
- Optimizing the machinig process, including (1) detecting geometric similarity; (2) Optimizing tool selection; and (3) Repairing defective parts.

Nov 2012 – Aug 2017 **Senior CFD Engineer**, *Ennova Technologies*, Berkeley, CA.
Ennova is creating the next-generation meshing software for computational mechanics (CFD and FEA). My role was:
- Design and implementation of a parallel 3D visualization tool for scientific data;
- Develop software extension for mutiphysics simulations;
- Implementation of various geometry and mesh translators for CFD data.

Nov 2011 – Oct 2012 **Aerodynamics and CFD Engineer**, *Harvistor Canada*, Picton, Canada.
Harvistor designed vertical-axis wind turbines for distributed power generation. My role was:
- Designing turbine airfoil and blade using computer simulations;
- Testing procedures for measuring turbine performance;
- Analyzing wind sites using CFD for turbine positioning;

Jun 2008 – Oct 2011 **Industrial Post-Doctoral Fellow**, *University of Waterloo*, Waterloo, Canada.
Industrial collaboration with Novelis, the world's largest producer of rolled aluminum products. My role was:
- Computer modeling of the proprietary Fusion^{TM} process for producing clad aluminum alloys;
- Suggesting design modifications to improve safety and productivity; ductivity;
- Supervising students, preparing technical reports and journal papers.

Part-time

2010–2012 **Freelance CFD Engineer**, Waterloo, Canada.

2000–2002 **Flight Simulator Design Engineer**, *Shahin Aviation Technology*, Tehran, Iran.

Education

PhD **Doctor of Philosophy**, *University of Waterloo*, Waterloo, Ontario, Canada.
Mechanical Engineering
Thesis: *Residual-Based Isotropic and Anisotropic Mesh Adaptation for Computational Fluid Dynamics*

MSc **Master of Science**, *Sharif University of Technology*, Tehran, Iran.
Aerospace Engineering
Thesis: *Stability Analysis of Boundary Layers over Airfoils using Parabolized Stability Equations (PSE)*

BSc **Bachelor of Science**, *Sharif University of Technology*, Tehran, Iran.
Mechanical Engineering

Computer Skills

OS	GNU/Linux, Unix, Windows
Language	C/C++, Python, JavaScript, Java, Lisp, Bash
Database	SQLite, PostgreSQL
Tools	Git, GCC, GDB, CMake, Valgrind, Ansible
Libraries	CUDA, TBB, Numpy, Qt, VTK, MPI, OpenGL, PyTorch
CAD	SolidWorks, Fusion 360, Parasolid
Visualization	Blender, ParaView, EnSight, PovRay
Scientific	Ansys, OpenFOAM, Matlab

Reference

Available upon request.

Work Authorization

Green Card holder; authorized to work for any US employer.