Austin Baird

Biomedcial Engineering Group Leader and Distinguished Member of the Technical Staff
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Objective

I am a leader in biological modeling and computational mathematics. I'm looking to make a broad impact in the industry and have a strong track record of leadership and project development.

Education

University of North Carolina at Chapel Hill — *Chapel Hill, NC*
PhD in Applied Mathematics — *August 2014*

University of California, Santa Cruz — *Santa Cruz, CA*
BA in Mathematics — *June 2008*

Experience

Applied Research Associates, Inc. — *Raleigh, NC*
Biomedical Modeling Group Leader (Senior Engineer, Distinguished Member of the Technical Staff) — *December 2018 - PRESENT*

- Lead a multidisciplinary team across 4 different projects in charge of agile development processes, technical roadmaping and delivery scheduling, direct communication with government customers
- Led and won six million dollars in research and development funds through Defense Health Agency grants
- Lead technical physiology modeler and principal investigator of the BioGears project
- Organized teaming across three research hospitals and multiple small businesses
- Communicate research progress through multiple conferences and peer reviewed publications, including the BioGears 2020 conference
- Oversaw implementation of all models associated with BioGears releases 7.0-7.3

Applied Research Associates, Inc. — *Raleigh, NC*
Staff Engineer 2 — *January 2017 - December 2018*

- Expanded the BioGears physiology model by adding gastro-intestinal digestion/absorption, diuretic drug, pain stimulus and epinephrine release and many others
- Nominated and won federal innovation award in collaboration with Telemedicine & Advanced Technology Research Center (TATRC) government lab
- Updated the BioGears build library to be hosted on github, modernized development timeline
- Won two government contracts totaling 4 million dollars in additional research and development funding
- Oversaw implementation of all models associated with BioGears releases 6.1-6.3

Applied Research Associates, Inc. — *Raleigh, NC*
Staff Engineer — *February 2016 - January. 2017*

- Implemented a new renal system model in the BioGears engine with local autoregulation
- Contributed to updated blood/gas model and matrix circuit solver implementation
- Led validation and unit testing of C++ code base
- Oversaw Jenkins cloud build testing environment including daily reporting and system validation

Webassign — *Raleigh, NC*
Content Developer — *August 2015 - February 2016*

- Created detailed solutions for the differential equation teaching application including step-by-step instructions for support the backend software
- Coordinated content outlines with leadership teams to detail requirements

Duke University *Durham, NC*

Visiting Assistant Professor *August 2014 - August 2015*

- Analyzed how pressure changes induced by heart failure affect the hemodynamic and reabsorptive function of the kidney.
- Taught two semesters of introduction to partial and ordinary differential equations, developed all course materials
- Developed computational mathematical model of the kidney and coordinated work with University of Ontario research hospital clinicians. Presented results at experimental biology, Boston MA
- Investigated blood clotting in the renal veins using the immersed boundary method

University of North Carolina, Chapel Hill *Chapel Hill, NC*

Graduate Research Fellow *September 2010 - August 2014*

- Developed a fully coupled fluid-structure interaction code in C++ and Python to test the performance of valveless pumping.
- Created a new computational valveless pumping mechanism using muscle cells providing the forcing in the system.
- Presented and work at 12 conferences, domestic and abroad and published results
- Led wet lab organism maintenance and worked with lab-mates to collect particle image velocity data from

Projects

Shellfish

- A command line interface based on the Unix Bash shell, written in C.
- Supports EOF (Ctrl-D) and SIGINT (Ctrl-C), multiple commands per line, and chained redirection and piping.

Zero Robotics

- Semifinalist out of 200 teams in MIT's international high school programming competition in C.
- Implemented 3D vector physics and game strategy for an autonomous satellite simulation using the ZR API.

Skills

Languages Python, Java, JavaScript, C, Ruby, Hack, Scheme

Frameworks Django, Jenkins, Chef, React, Angular, Flask, AWS, Docker, GraphQL

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