Autumn Fjeld

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EDUCATION

Software Engineering Immersive –Javascript & Frameworks – *Hack Reactor, San Francisco* – 2014
Ph.D. & M.S. – Materials Science & Engineering – *University of California, Berkeley* – 2006
B.S. – Chemical Engineering, *Magna Cum Laude* – *Arizona State University* – 1997

TECHNICAL EXPERIENCE

WikiViz Project & 2014
Data visualiztion tool

- Role & tech stack Showed interconnectedness of Wikipedia urls in WikiViz, visualization tool using semantic text analysis and d3 to display data.
- Technical challenge: Coded xyz for abc project, a mobile application for connecting users with last minute. TODO: Success from big group project.
- Project outcome

ToDo Unknowname Project & 2014

- Role & tech stack
- Tech Challenge: Coded xyz for abc project, a mobile application for connecting users with last minute. TODO: Success from big group project.
- Project Outcome

Freelance Science Editor 2010 - present
Edited scientific manuscripts for non-native English speakers

- Created www.science-edit.com to advertise my services. Brought in business by advertising in Austrian social media.
- Edited scientific manuscripts for non-native English speakers, leading to publication in high profile scientific journals.
- Contract work for American Journal Experts, a global editing service for scientists.

Business Development Engineer – NUMECA International, San Francisco, CA
Engineering Support & Business Development November 2010 - July 2013

- Worked with technical support team in a fast-paced, problem solving environment to deliever customer solutions in meshing, computation setup, and post-processing.
- Benchmarked a variety of engineering systems for potential customers on NUMECA's meshing and CFD tools leading to software sales.
- Drove improvement of Computational Fluid Dynamics (CFD) tools as an integral part of the feedback loop for identifying and troubleshooting software bugs, user-friendliness, and scientific accuracy issues.
- Mastered expertise in three CFD solvers, four meshing tools, and gained experience in CAD tools.
- Continually worked to improve technical documentation and marketing literature including user manuals, web site content, posters, and conference oriented information. Led major overhaul of webinar training materials and style of presentations.
- Developed content for and delivered technical training webinars twice a month to NUMECA's user base.

Post Doctoral Research – University of Leoben, Austria
Simulation & Modeling of Metallurgical Processes June 2006 - November 2010

- Worked in partnership with Austrian industry, investigated casting processes through CFD modeling, with the primary aim of understanding how filling induced flow phenomena influences final casting material properties.

- Developed FLUENT model to capture key phenomena affecting the casting of a large dual-alloy rolling mill roll, including flow behavior during filling, remelting and solidification; developed user defined codes to expand the functionality of solver.
- Defined experimental investigations for our industry partner including cooling curve analyses, metallurgical sampling of the casting, filming of filling and pouring stream behavior, and tracking process temperatures.
- Correlated simulation results and industry observations, provided industrial partner with new insight into their casting process and recommended process improvements.
- Modeled a horizontal spin casting process to gain understanding of how large body forces and rotation alter solidification behavior.
- Ran simple OpenFoam test models to determine feasibility of running VOF and solidification models in OpenFoam.
- User defined functions in C???? to extended capabilities of native solver
- scheme scripts to automate post-processing

Ph.D. – University of California, Berkeley
Materials Science & Engineering June 2001 - June 2006

- Collaborated in a five year project with Alcoa, Inc. to optimize a molten aluminum purification process, with specific goals to reduce toxic chloride emissions and improve energy efficiency.
- Developed and evaluated multiple CFD models of the aluminum purification process in an industrial stirred tank reactor using FLUENT, simulating two–phase flow interactions and gas injection through a rotating impeller shaft.
- Assessed and compared mixing, residence time, and bubble distribution for different operating conditions and impeller configurations in each CFD model.
- Carried out experimental investigations in an industrial purification unit at the Alcoa Technical Center with a novel bubble detection probe in molten aluminum; used experimental findings to validate and fine tune CFD model results.
- Employed high speed photography and image analysis to investigate the reduction of particulate emissions in an industrial fluxing unit via laboratory simulation of bubble bursting and droplet splashing at the surface of a molten metal.
- ToDo: Extensive use of matlab to compute lots of fun stuff.....

M.S. – University of California, Berkeley
Materials Science & Engineering July 1999 - June 2001

- Researched and developed experimental thin films for supported liquid membranes with an application towards filtration of acetic acid.
- Investigated processing techniques and properties of epoxy films applied to a membrane surface to seal liquid extractant into pores of supporting membrane.
- Investigated novel layer-by-layer assembly of polyelectrolytes to be used as thin films encasing extractant in supported liquid membranes.

Process Engineer – Dow Chemical Corporation, Freeport, TX
Process Engineering Department September 1997 - June 1999

- Led the Fluid Flow team in serving plant design needs, gathering process information, and applying software design tools.
- Created equipment database for Process Engineering, providing the department with a single tool to electronically store and communicate information during the design phase of a project.
- Served on core project team for grass roots chemical plant; designed plant equipment and worked on plant development. Completed air permit calculations for Canadian Government.

SOFTWARE EXPERIENCE

- What to do with this section?
- FLUENT, GAMBIT, OpenFOAM, full line of NUMECA's CFD suites
- Matlab, Mathematica, C, Fortran, Scheme, Python

- Linux, Mac OSX, Windows

NOTABLE

- Proposal to Materials Center Leoben, a scientific research facility in Austria, accepted for a three year project for simulation of industrial scale horizontal spin casting process
- Grant written, awarded for computational resources at the Pittsburgh Supercomputing Center
- Outstanding Graduate Student Instructor Award at Berkeley
- Recipient of Jane Lewis Fellowship at Berkeley
- Founded weekly conversational German group in Leoben, Austria for German-learning foreigners
- Strong volunteer history in math and science tutoring for elementary and high school students
- Volunteer at Mission Graduates, mentoring disadvantaged students through college application process
- Founded science-edit.com, a proof-reading service for scientific texts
- Love to sew and create and make colorful clothes, bags, anything!