John Edmiston

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Experience

6/2019–present **Senior Data Scientist/Senior Engineer**, *MycoWorks*, Emeryville, CA.
Data systems architecture, Backend/Frontend design and implementation, Distributed computing, Hardware device integration

- Designed, developed, and managed team to create in house MES system to democratize data and improve workflows
- Built general hardware/software communication system via GCP Pub/Sub, Ignition

1/2019–6/2019 **Senior Data Scientist**, *Proteus Digital Health*, Redwood City, CA.
Data integration of medical systems, EHR records

1/2018–1/2019 **Data Scientist**, *Hinge Health*, San Francisco, CA.
Product analytics, health care claims analysis, eligibility verification

10/2015–1/2018 **Structural Analyst**, *Lawrence Livermore National Laboratory*, Livermore, CA.
Built and analyzed numerical models for high fidelity simulation of hypervelocity impacts and energetic materials

7/2013–10/2015 **Postdoctoral fellow**, *Lawrence Berkeley National Lab*, Berkeley, CA.
Develop methods for coupling porous flow and geomechanics using a variety of numerical methods (finite element, finite volume, peridynamics)

6/2012–6/2013 **Project Engineer**, *Symplectic Engineering Corporation*, Berkeley, CA.
Developed meshless methods for high velocity impact simulation

4/2009–5/2012 **Lawrence Scholar (PhD)**, *Lawrence Livermore National Laboratory*, Livermore, CA.
Developed optimization based analysis techniques for synchrotron X-ray diffraction image analysis and a modeling framework for continuum plasticity of single crystals based on material symmetry

Computer skills

Languages Python, R, C++, C, MatLab, Mathematica, Labview, Fortran, SQL

Packages Docker, NumPy, SciPy, Airflow, PETSc, MPI, OpenMP, VTK, Boost.Python, Scikit-learn, Pytest, Flask, SQLAlchemy

Cloud	GCP: GCE, Cloud SQL, Pub/Sub, Cloud functions, Logging
General methods	Parallel computing, machine learning, modeling physical systems, partial differential equations

Numerical modeling

- Meshless methods and simulation: Peridynamics, SPH, MLSPH, EFG, MLPG
- Finite Element Method, Finite Fourier Transforms, Finite Volume Method, Spectral Analysis
- Optimization, weighted least squares, model calibration, uncertainty analysis

Doctoral thesis

Title	*Recent Advances in Continuum Plasticity: Phenomenological Modeling and Experimentation Using X-ray Diffraction*
Supervisors	David J. Steigmann and George C. Johnson
Description	Two aspects of plasticity in single crystals are examined. First, a modeling approach based on classical phenomenological ideas (e.g., a formulation consistent with material symmetry as opposed to the a decomposition of plastic flow onto slip systems) is suggested to model plastic flow. We include a detailed constitutive framework and calibrate the model to data. Second, improvements to synchrotron X-ray diffraction experimentation are described. We include uncertainty analysis of lattice strain measurements using high-energy monochromatic X-ray diffraction and develop a forward model to quantify intragranular misorientation generated as a result of plastic flow. Analysis of experimental data from a tension test of a Titanium polycrystal are presented to support these topics.

Masters thesis

Title	*An Experimental Study of Piezoresistance in a Liquid Suspension*
Supervisor	Yuri M. Shkel
Description	An experimental configuration was developed from scratch to extract piezoresistive constitutive properties of a conductive composite suspension. A rheometer was used to measure oscillatory deformation information, and a resistance measurement of the material was taken using a custom pattern of interdigitated electrodes. The sensor was incorporated into a Wheatstone bridge and data was obtained using amplitude-modulated signal processing principles. The extracted sensor resistance was related to the resistivity of the material using an analytical derivation for the strain response and assumptions of material isotropy.

Education

2006–2012	**PhD**, *University of California, Berkeley, Mechanical Engineering*.
2004–2006	**MS**, *University of Wisconsin, Madison, Mechanical Engineering*.
1999–2004	**BS**, *University of Minnesota, Minneapolis, Mechanical Engineering*.