Graham A. Johnson

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https://geejayy.github.io/

Work Experience

Lab for Multiscale Processes–Purdue University
Graduate Research Assistant
May 2011 – May 2016

Led by Distinguished Professor John H. Cushman on collaborative and individual projects crossing the boundaries of applied mathematics, multi-scale modeling, and computational sciences. Projects blended theoretical structures with computational schemes and made-use of tools from subjects of nonlinear dynamical systems analysis, design, simulation, sampling, & classification of novel stochastic processes, experimental data analysis, estimation, statistical evaluation, & uncertainty quantification, multi-scale swelling porous media physics, modeling with continuum & statistical mechanics, and finite-element methods & adaptive mesh refinement, to name just a few. Proficiently navigated a wide array of computer software packages, astutely studied and employed apt programming languages, and implemented efficient numerical methods for high-fidelity computational schemes. Rigorously analyzed data & computed solutions to develop perceptive visualizations & strengthen multiple levels understanding. Effectively communicated worked affably alongside mentors, collaborators, colleagues. Engagingly presented select research material, in both poster and slide formats, and prepared intelligible investigative summaries for audiences across diverse disciplines.

Department of Mathematics–Purdue University
Graduate Student Instructor
August 2011 – May 2016

Continually progressed from a teaching assistant to graduate instructor in the Mathematics Department. Assigned a semesterly teaching position requiring 20 hours of work each week. Regularly lectured multiple sections of a course each semester, from a set of diverse undergraduate mathematics courses. Developed effective learning material and delivered fresh & engaging lessons, managed grades ethically, held weekly office hours, and provided frequent feedback. Received exceptional instructor evaluations from students, course coordinators, & faculty.

ATK Space Systems–Promontory, UT
Analyst, Loads & Environments
May 2012 – August 2012

Internship within the Loads & Environments group, partnered with a mentor as a dynamical loads analyst. Designed custom FIR filters for rocket engine test data, analyzed Monte-Carlo simulations for Thrust Vector Control experiments, and calculated statistical metrics to aid in future design considerations. Observed full-scale experimental design and testing in multiple specialized laboratories. Participated in group meetings and delivered informative technical presentations & summaries.

Education

2013 – May 2016 — **M.S. Mathematics**
Applied & Comput.
GPA 3.54/4.0
Purdue University

2011– December 2012 — **M.S. Aero/Astro Eng.**
Dynamics & Opt Ctrl
GPA 4.0/4.0
Purdue University

2007 – May 2011 — **B.S. Aero/Astro Eng.**
Dynamics & Control
GPA 3.44/4.0
Purdue University

Technical Skills

Advanced level — MATLAB, SIMULINK, COMSOL Multiphysics, Microsoft Excel & Office Suite, Windows OS, Mac OS, LaTeX

Basic level — Unix, Fortran, C, C++, Java, Vpython, Processing, R, Mathematica, Maple, ANSYS, CATIA V5, STK Satellite Tool-kit, LabVIEW

Accomplishments & Awards

- Co-Author in *Journal of Statistical Mechanics: Theory & Experiment*
- Interpore Conference, graduate research poster presenter – May 2014
- Excellence in Graduate Teaching Award, Purdue Department of Mathematics – December 2014
- Completed Purdue Foundry Launch-Box Entrepreneurial Program – Spring 2016

Organizational Affiliations

- Treasurer, Purdue Student Farm Organization– 2013-2016
- Member of International Society of Porous Media– 2013-2016
- Member of American Mathematical Society– 2014-2016
- Purdue Outing Club past officer & member

Personal Interests

- Modeling complex multi-scale systems, applied stochastic processes, computational optimization algorithms, data visualization, renewable energy systems, biological systems, agro-ecosystems, microbiology, brain science, space science, & multidisciplinary problems.
- Rock climbing, trail running, mountain biking & maintenance, wilderness backpacking, cooking, artisanal bread baking, fermentation.