Graham A. Johnson

INTEGRATING SCIENCE, MATHEMATICS, ENGINEERING, & DATA VISUALIZATION

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WORK EXPERIENCE

The Aerospace Corporation

Sr. Member of Technical Staff

March 2016 – Present

Joined the Advanced Visualization & Mobile Development section, within the Visualization & Immersive Technologies Department. Actively supported corporate innovation projects across emerging technology areas. We design, develop, and deploy interactive & high-performance data visualization applications across all platforms (i.e. desktop, web, mobile, & immersive hardware), enabling customers to tell data-driven stories while gaining intuitive understandings of complex systems. Led the development of the company's first Augmented Reality applications, using Unity & the Microsoft HoloLens.

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 & made use of techniques from subjects of: nonlinear dynamical systems analysis, numerical methods & model design, random sampling, novel stochastic processes, experimental data analysis, estimation, statistical evaluation, & uncertainty quantification. Thesis research involved novel multi-scale swelling porous media simulations, employing high-fidelity modeling with continuum & statistical mechanics, methods in partial differential equations, finite-element methods, & adaptive mesh refinement.

Department of Mathematics–Purdue University

Graduate Student Instructor

August 2011 – May 2016

Continually progressed as a graduate instructor in the Mathematics Department. Assigned half-time semesterly teaching positions, & regularly lectured multiple sections of the assigned course. Developed effective learning materials, delivered fresh & engaging lessons, & designed fair examination questions. Managed grades ethically, held weekly office hours, & 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. Designed custom FIR filters for rocket engine test data, analyzed Monte-Carlo simulations for Thrust Vector Control experiments, & calculated statistical metrics to aid in future design considerations. Observed full-scale experimental design & testing in specialized laboratories.

EDUCATION

2013 – 2016 **M.S. Applied Mathematics**
GPA 3.54/4.0
Purdue University

2011– 2012 **M.S. Aero/Astro Engineering**
GPA 4.0/4.0
Purdue University

2007 – 2011 **B.S. Aero/Astro Engineering**
GPA 3.44/4.0
Purdue University

TECHNICAL SKILLS

LANGUAGES: JavaScript, TypeScript, HTML, CSS, Python, MATLAB/Octave, C, C++, C#, R, LaTeX

FRAMEWORKS: Node.js, D3.js, Angular6, Git, Mercurial, Unity, Adobe After Effects, Microsoft Office, Unix, Linux, MacOS, Windows

PROFESSIONAL SKILLS

- Effective Communication & Active Listening Styles
- Presenting Effective Briefings Across Disciplines
- Strong Attention to Details & Big Picture Impact
- Project Leadership, Team Management, & Customer Interactions
- Agile & Waterfall Methodologies

ACCOMPLISHMENTS & AWARDS

- Briefed The Aerospace Corporation Board of Trustees, Augmented & Virtual Reality Applications
- Completed Columbia University Online Course Machine Learning - Fall 2018
- Published Peer-Reviewed Articles in *Journal of Statistical Mechanics: Theory & Experiment*
- Interpore (International Society of Porous Media) Conference Research Presenter
- Excellence in Graduate Teaching Award, Purdue Dept. of Mathematics

PERSONAL INTERESTS

- Data Visualization & Interactive Storytelling, Studying Complex Multi-Scale Systems, Applied Stochastic Processes, Computational Optimization Algorithms, Renewable Energy, Biological & Agro-Ecosystems, Neuroscience, Space Science, & Multidisciplinary Problems.
- Rock Climbing, Trail Running, Mountain Biking, Wilderness Backpacking, Fly-Fishing, Nutritional Cooking, Artisanal Bread Baking, Fermentation.