Charles D. Brummitt

Applied Mathematician · Data Scientist

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EXPERIENCE

Columbia University, New York City, NY — *Postdoctoral Research Fellow*

September 2014 – August 2016

Developed new models of financial crises and of supply-chain disruptions; funded by a James S. McDonnell Foundation grant

Wolfram Research, Inc., Remote — *R&D Fellow*

July 2009 – Present

Created public-facing data visualizations of data and of mathematical content for Wolfram Alpha

Microsoft Research, New York City, NY — *Research Intern*

June 2013 – August 2013

Condensed nuanced empirical research on the 2007–2008 financial crisis into a model of asset price collapse, published later that year

EDUCATION

University of California, Davis — *Ph.D. Applied Math*

September 2009 – May 2014

Studied models and data of complex systems, including blackouts in electric power grids, financial crises, innovation, behavior change

University of Wisconsin, Madison — *B.S. Physics, Math*

September 2005 – May 2009

Won nine scholarships and published 2 peer-review research papers

RECENT PROJECTS

Automatic economist — *Identify sparse nonlinear dynamics in economic data (ongoing)*

Applying recent techniques in machine learning (SINDy) to economic data on exports; implementing it in Python/scikit-learn

Supply-chain disruptions & complexity traps — *A new theory of economic development*

Analyzed the World Bank Enterprise Survey on 130,000 firms; found novel correlations that verify hypotheses generated by a new theory

SKILLS

Python, R, Mathematica, SQL, Java, C++, HTML, CSS

Data analysis, visualization, machine learning, statistics

Mathematical modeling of complex systems, network science, systemic risk, economic development

AWARDS

James S. McDonnell Postdoctoral Fellowship One of ten international awards of $200,000 to study complex systems

Two national fellowships for graduate school NDSEG, NSF

NSF EAPSI Grant for research at Korea University 2011

Alice Leung Scholarship UC Davis prize for research

R. Creighton Buck Prize for unusual creativity in mathematics Highest honor given to UW math majors in acknowledgment of talent

LANGUAGES

English, Spanish

COURSEWORK

Statistical learning, deep learning, convex optimization, economics, finance, game theory, Bitcoin, startup engineering