

Jeremiah Brown

10167 Tybalt Drive
Fishers, IN 46038
(317) 910 – 4085
brownJL76@yahoo.com

Technical Skills

Statistical Analysis Methods

Wavelets, EOFs, SVD, Fourier, Filter Design, Linear Regression

Programming Languages

Matlab (GUI, Simulink, Real-Time Workshop), Fortran, Perl, C

Operating Systems

Windows, Unix

Application Software

MS Office, LaTeX

CAD Systems

Pro/E 3000 hrs (rev 16-21), Autocad 1500 hrs (rev 12, 13)

Summary of Qualifications

- ▶ Innovative and self-motivated researcher capable of merging academic theory and experimental investigation in a team environment.
- ▶ Experience working remotely to analyze atmospheric and oceanic data for NASA.
- ▶ Skilled in presentation of technical information for professional conferences, as well as for industry executives and engineers.
- ▶ Graduate coursework in Wavelets, Digital Signal Processing, Stochastic Processes of Random Data, Geophysical Fluid Dynamics, Meteorology, Oceanography, Numerical Modeling, Statistics, and Advanced Mathematics.

Education

Doctor of Philosophy in Geophysical Fluid Dynamics

2009

Florida State University, Tallahassee, FL

- ▶ **Dissertation**—Wavelets-based analysis of variability in the air-sea fluxes. Various phenomena involved in air-sea interaction are characterized through temporal and spatial variability fluxes. Energy transfer across temporal and spatial scales is also quantified via the surface energy budget.
- ▶ **Coursework:** Wavelets, Statistics, Geophysical Fluid Dynamics, Meteorology, Oceanography, Air-Sea Interaction, Numerical Modeling

Master of Science in Mechanical Engineering

2002

Purdue University, West Lafayette, IN

Sponsored by Whirlpool Corporation

- ▶ **Masters Thesis**—Developed a system identification algorithm for diagnostics and prognostics in consumer washing machines. This algorithm can be extended to model nonlinear electromechanical systems using input/output time domain data.
- ▶ **Coursework:** Digital Signal Processing, Stochastic Processes of Random Data, Digital Control, Multivariable Control, Dynamic Systems Analysis, Nonlinear System Analysis

Bachelor of Science in Mechanical Engineering

1999

Texas A&M University, College Station, TX

- ▶ **Senior Design Project:** Design, fabrication, and testing of a Formula SAE racecar. As leader of the suspension team, I coordinated task completion with design and supply cost management. Managed quality control of Pro/E models and engineering drawings.
- ▶ **Coursework:** Vehicle Dynamics, Material Sciences, Mechanical Design, Controls, Thermodynamics, Heat Transfer, Fluid Dynamics, Numerical Modeling

Experience

Florida State University, Tallahassee, FL

2004-Present

Graduate Research Assistant

- ▶ Developed a series of statistical tools in Matlab to automate analysis tasks involving wavelets, EOFs, and statistical comparison.
- ▶ Created a Matlab-based GUI for a flux model of air-sea interaction. The GUI eliminates the necessity of being a modeling expert to run the flux model. The flux model was first converted from C into Matlab.
- ▶ Worked with NASA scientists for statistical comparison of data sets gathered in the Mediterranean Sea. This work was completed remotely.
- ▶ Statistical analysis of air-sea interaction involving the Madden Julian Oscillation and the Indian Ocean Dipole. Analysis included use of wavelets and EOFs.

Presentations

AMS Annual Meeting (2006)
Atlanta, GA
 "The Feedback Between Entrainment Flux and Sea Surface Temperature"

Herrick Labs Partners Program Conference (2001,2002,2003)
Purdue University
 Presented to Engineers and Managers of Various Companies

Short Course Seminar (2002)
Purdue University
 Presented to Engineers of the Whirlpool Corporation on:
 ▶ System Identification
 ▶ Signal Processing
 ▶ Modeling
 ▶ Diagnostics

ASME Conference (2001)
New York, NY
 "Washing Machine Health Diagnostics Through Information Synthesis"

International Appliances Technical Conference (2001)
Columbus, OH
 "Washing Machine Diagnostics Using Information Synthesis"

Experience (Continued)

The MathWorks, Natick, MA 2003-2004
Software Quality Engineer

- ▶ Tested software quality for Embedded Coder, a component of Matlab Real-Time workshop designed to produce compiled target language code for rapid prototyping.
- ▶ Developed tools for testing software using Perl, Visual C, and Matlab code.
- ▶ Created a web-based tutorial for the System Identification Toolbox. The tutorial compares discrete and continuous models while analyzing estimation error, pole/zero dynamics, accuracy of fit, and data filtering.

Herrick Laboratories, Purdue University, West Lafayette, IN 1999-2003
Graduate Research Assistant

- ▶ Created an imbalance detection algorithm for consumer washing machines. Implementation reduces vibration level, manufacturing cost, machine weight, and improves vibration control for washing machines produced by Whirlpool Corporation.
- ▶ Designed and constructed a data acquisition system which included sensors, computer hardware, filters, and D/A computer boards.
- ▶ Controller design for idle speed problem in fuel-injected automobile engine. This robust controller design incorporates parametric uncertainty in the frequency domain to regulate engine speed over a large range of operating conditions.

Whirlpool Corporation, Benton Harbor, MI Summer 1999
Engineering Intern in Research and Development

- ▶ Served as intern team leader throughout the testing and dynamic analysis of a developmental low water washing machine. Duties included development and execution of testing, as well as design and construction of an automated water fill system.

Lockheed Martin Vought Systems, Dallas, TX 1997-1998
Cooperative Education (CO-OP) Student *Active Secret Clearance*

- ▶ Design engineer leading projects and creating Pro/E model layouts and drawings for missile production of various product platforms.
- ▶ Lead engineer for the development of the material and structural design of a seal system for a missile launch vehicle.

Publications

- ▶ "MJO Estimation Using Wavelet-Based Filtering of OLR Data." (2008) Co-authored with Carol Anne Clayson and Eric Chicken. *Journal of Atmospheric and Oceanic Technology*, Submitted.
- ▶ "North Indian Ocean Variability During the Indian Ocean Dipole." (2008) Co-authored with Carol Anne Clayson and Lakshmi Kantha. *Ocean Science Discussions*, Submitted.
- ▶ "Imbalanced Load Detection of a Horizontal-Axis Washing Machine During the Spin Cycle." (2003) Technical report submitted to the Whirlpool Corporation.
- ▶ *Information Synthesis with Applications to Electromechanical Systems*, (2002) Masters Thesis, Purdue University
- ▶ "Washing Machine Health Diagnostics Through Information Synthesis." (2001) Co-authored with Matt A. Francheck. *ASME International Mechanical Engineering Congress and Exposition*. November 11-16, New York, NY.
- ▶ "Washing Machine Diagnostics Using Information Synthesis." (2001) Co-authored with Matt A. Francheck. *Proceedings of the 52nd Annual International Appliance Technical Conference*. pp. 194-204. March 26-28, Columbus, OH.