

Walter D. Bennette

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Education

Iowa State University

Ames, IA

15 August 2011- 09 May 2014

PhD in Industrial Engineering with a minor in Statistics (GPA: 3.88)

Awards and Activities: SMART scholarship, Engineering Fee Task Force, College of Engineering Dean's Budget and Planning Advisory Council, Preparing Future Faculty Program, Research Excellence Award

Iowa State University

Ames, IA

17 August 2009-06 May 2011

Master of Science in Industrial Engineering (GPA: 3.93)

Awards and Activities: Cowell Fellowship, Engineering Graduate Student Dean's Advisory Board, Engineering Fee Task Force, College of Engineering Dean's Budget and Planning Advisory Council

Lake Superior State University

Sault Ste. Marie, MI

22 August 2005-08 May 2009

Bachelor of Science in Mathematics (Graduated Cum Laude, GPA: 3.687)

Minor in Mechanical Engineering

Awards: Board of Trustees Distinguished Scholarship, Rotary Scholarship, Wal-Mart Scholarship, and Franklin F. Otis Memorial Scholarship.

Research Experience

Integer Programming for Instance Selection in Supervised Learning

September 2012-Present

This research introduced instance selection techniques that utilize integer programming to select a subset of the data in such a way that all or some classification learning algorithms will perform better. This work joins optimization theory and data mining to form a theoretically robust and solvable formulation of instance selection.

Instance Selection for Improved Classifier Performance

May 2011-August 2012

Developed a unique approach for improving simple classification algorithms through the application of instance selection. Extensively use data mining software, R, and some Java programming to perform experiments as well as analyze results.

Instance Selection for Interpretable Decision Tree

January 2010-May 2011

Decision trees are used to predict the dependent variable of a data point (an instance) based on the values of the data point's independent variables. This research introduced a new data mining technique to improve the interpretability of decision trees and improve overall decision tree predictive accuracy.

Teaching Experience

Preparing Future Faculty Participant
12 January 2014 – 09 May 2014

Ames, IA

Taught introductions to statics and statistics to freshman students in four lectures delivered over two weeks. Emphasized active learning in the classroom (think-pair-share/collaborative learning group). Assessed student learning through weekly homework assignment.

Guest Lecturer
01 September 2013 – 09 May 2014

Ames, IA

Developed and delivered a lecture for first year Industrial Engineering graduate students to provide resources and information for a smooth transition at Iowa State. Developed and delivered a case study lecture to junior Industrial Engineering students to highlight the applicability of operations research techniques. Focused imparting useful information through the use of accessible technology.

Teaching Assistant
22 August 2009 – 09 May 2014

Ames, IA

Teacher's assistant for IE 413 Introduction to Stochastic Modeling and IE 305 Engineering Economics. Held office hours for students where they received clarification on classroom material, aid in learning software, and help with modeling assignments. Graded weekly reports and provided feedback to guide toward better report writing.

Work Experience

Air Force Research Lab Information Directorate
11 August 2014-Present

Rome, NY

Research Engineer for Air Force Research Lab. Guide and aide in research by supplementing groups with personal expertise in data analytics and simulation. Collaborate to understand current Air Force needs and identify technical solutions.

SMART Scholarship: Recruitment Participant
01 August 2011-Present

Rome, NY

Science, Mathematics and Research for Transformation (SMART) scholar. Perform summer internships and have service commitment at an Air Force Research Lab (AFRL) in return for full school tuition and annual stipend. Have current internship at AFRL/RI with the National Operational Environment Model (NOEM) research group. Perform independent verification of NOEM's critical infrastructure modules; ensure that the model reflects programmer's vision. Major tasks include finding and reporting errors in code, creating a verification document for NOEM's customers, and developing testing procedures.

ITT Exelis: Computer Programming Intern
13 August 2012-15 February 2013

Rome, NY

Continue SMART scholarship summer internship duties for the National Operational Environment Model (NOEM) research group. Work remotely and perform independent verification of NOEM's critical infrastructure modules; ensure that the model reflects programmer's vision. Major tasks include finding and reporting errors in code, creating a verification document for NOEM's customers, and developing testing procedures.

Work Experience (continued)

SUNY IT: AFRL/RI Intern

Rome, NY

09 May 2011 - 18 August 2011

Summer intern for the National Operational Environment Model (NOEM) research group at AFRL/RI. Helped perform a sensitivity analysis pilot study and delivered several sensitivity analysis options, including a novel approach of visualizing results via decision tree. Worked with several group members to accomplish this pilot study. Results were later incorporated into the NOEM, and the decision tree technique is being organized as part of a book chapter.

Space and Naval Warfare Systems Command: NREIP Intern

San Diego, CA

07 June 2010 - 06 August 2010

Summer intern for the communication and information sciences department at SSC Pacific. Research goal was to search for a relationship between ocean acoustics and seismic events from coastal earthquakes. Took advantage of signal processing and seismic theory to devise a classification scheme of recorded ocean acoustics. Presented a technical brief to department researchers and visiting faculty. Designed and presented an informational poster upon conclusion of internship at a base wide event.

Publications

W. Bennette and S. Olafsson (2014), An integer programming formulation of the instance selection problem for model-based classifiers, (prepared for submission)

W. Bennette (2014). Instance selection for model-based classifiers. Dissertation, Iowa State University.

J. Salerno, J. Smith, W. Geiler, P. McCabe, A. Panasyuk, W. Bennette, A. Kwiat, (2013), The NOEM: A Tool for Understanding/Exploring the Complexities of Today's Operational Environment. Handbook of Computational Approaches to Counterterrorism, Springer 2013, pp. 363-400.

W. Bennette (2011). Instance selection for simplified decision trees through the generation and selection of instance candidate subsets. Master thesis, Iowa State University.

Skills

Through the courses and projects undertaken in my graduate studies I have gained a proficiency in simulation and simulation output analysis, mathematical modeling and solution techniques, network analysis (graph theory), scheduling theory, statistical methods and theory, and data mining.

To complement the above skills I am proficient in R (statistical computing language), Weka (data mining software), CPLEX Optimization Studio, MATLAB and Arena Simulation Software. I also utilize Java in research.