

WALTER D. BENNETTE

(906) · 748 · 0841 ◊ wdbennette@gmail.com

7280 Lake View Dr. ◊ Ava, NY 13303

bennette.github.io

EDUCATION

Iowa State University

May 2014

M.S. and Ph.D., Industrial Engineering

Minor in Statistics

Dissertation: *Instance selection for model-based classifiers* Developed novel data preprocessing method to improve predictive accuracy of model-based classifiers, solved through integer programming formulation and efficient search of decision space.

Lake Superior State University

May 2009

B.S., Mathematics

EMPLOYMENT

Air Force Research Laboratory Information Directorate

August 2014 - Present

Industrial Engineer

Rome, NY

Perform basic research in machine learning. Utilize operations research techniques to mitigate data mining issues (and vice versa). Lead group of early in their career researchers to develop solutions for operational and prototype information systems.

Air Force Research Laboratory Information Directorate

May 2011 - August 2013

Summer Intern

Rome, NY

Intern for the National Operational Environment Model (NOEM) research group. Developed procedure to verify correctness of large simulation project and performed testing. Reported errors and worked with developers to resolve. Performed sensitivity analysis pilot study and developed novel approach to visualize results via decision tree. Results organized as part of book chapter.

Space and Naval Warfare Systems Command

June 2010 - August 2010

NREIP Summer Intern

San Diego, CA

Intern for the communication and information sciences department at SSC Pacific. Searched for relationship between ocean acoustics and seismic events from coastal earthquakes. Utilized signal processing and seismic theory to devise a classification scheme of recorded ocean acoustics. Results delivered in brief and poster.

TEACHING EXPERIENCE

Griffiss Institute Challenge Problem

January 2015 - March 2015

Challenge Creator & Instructor

Rome, NY

Designed data mining challenge problem and associated lectures for high school seniors. Introduced concepts of data cleaning, machine learning, and evaluation. Led lectures and provided assistance to challenge participants. Created customized software for execution of the challenge and recorded web content for additional support. Challenge winners were awarded internships at AFRL/RI.

Preparing Future Faculty

September 2013 - May 2014

Participant

Ames, IA

Covered teaching methodologies and introduction to faculty experiences. Taught introductory statistics to freshman students over four lectures for capstone project. Emphasized active learning in the classroom

(think-pair-share/collaborative learning group). Assessed student learning through weekly homework assignments.

Iowa State University

September 2013 - May 2014

Guest Lecturer

Ames, IA

Developed/delivered lecture for first year Industrial Engineering graduate students to provide resources and information for a smooth transition to Iowa State. Developed/delivered 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.

Iowa State University

August 2009 - May 2014

Teaching Assistant

Ames, IA

Teaching assistant for "Introduction to Stochastic Modeling" and "Engineering Economics". Clarified classroom material, aided in learning software, helped with modeling assignments. Graded weekly reports and provided feedback to guide toward better report writing.

PUBLICATIONS

Bennette, W. 2017. A data driven stopping criterion for evolutionary instance selection. *In Advances in Computational Intelligence Systems*, 407 - 420.

Zeliff, K., Bennette W., and Ferguson S. 2016. Multi-objective Composite Panel Optimization Using Machine Learning Classifiers and Genetic Algorithms. *In Proceedings of the ASME 2016 International Design Engineering Technical Conference & Computers and Information in Engineering Conference*

Venkateswaran, V., and Bennette W. 2016. Critical node analysis (CNA) of electrical infrastructure networks. *In SPIE Defense+ Security. International Society for Optics and Photonics.*

Bennette, W. 2014. Instance selection for model-based classifiers. Masters thesis, Iowa State University.

Salerno, J., Smith J., Geiler W., McCabe P., Panasyuk P., Bennette W., and Kwiat A. 2013. The NOEM: A Tool for Understanding/Exploring the Complexities of Today's Operational Environment. *In Handbook of Computational Approaches to Counterterrorism*, 363400

Bennette, W. 2011. Instance selection for simplified decision trees through the generation and selection of instance candidate subsets. Ph.D. dissertation, Iowa State University

SELECTED PRESENTATIONS

Training Set Selection to address big data challenges

Speaker & Session Chair: Armed Forces Communications and Electronics Association C4I and Cyber Conference, 2016

Scaling methods for Training Set Selection

Invited Speaker: Workshop of Mission-Critical Big Data Analytics, 2016

Training Set Selection for model-based classifiers

Invited Poster: Air Force Research Lab Information Directorate Scientific Advisory Board review, 2015

INFORMS presentations

Presented ongoing machine learning research at INFORMS annual meetings, 2013, 2015, 2016

AWARDS

Research Excellence Award: In recognition from Iowa State University for outstanding research accomplishments as documented in dissertation, 2014.

SMART Scholarship: Science, Mathematics and Research for Transformation (SMART) scholar. Full tuition and stipend for Ph.D. program from Department of Defense, 2013.

TECHNICAL STRENGTHS & SKILLS

Through courses and projects 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.

Computer languages	R, Java, Matlab, Python
Libraries	Weka, CPLEX, SPARKR