

Matthew J. Ballan

Contact Information	15615 Terrace Lawn Cir Dallas, TX 75248 USA	Phone: (561) 706-1792 Email: mjballan@simcon-solutions.com
Career Objectives	To analyze and solve complex problems using industrial engineering and operations research techniques.	
Education	North Carolina State University (NCSU), Raleigh, NC Industrial and Systems Engineering August 2012 – May 2014, GPA: 3.63/4.0 <u>PhD Qualifying Examinations Passed:</u> • ISE 515 – Manufacturing Process Engineering • ISE 540 – Human Factors in Systems Design • ISE 723 – Production Planning, Scheduling and Inventory Control • ISE 754 – Logistics Engineering Texas Tech University (TTU), Lubbock, TX Bachelor of Science in Industrial Engineering, May 2011 Summa Cum Laude, GPA: 3.92/4.0 Minor in Mathematics Masters of Industrial Engineering, May 2012, GPA: 3.90/4.0 Relevant Coursework: Simulation Modeling; Advanced Simulation Design and Analysis; Statistical Data Analysis; Sequencing and Scheduling; Statistical Process Control; Design of Experiments; Queuing Theory; Stochastic Processes; Production Planning, Scheduling, and Inventory Control; Linear Programming; Lean Manufacturing; Manufacturing Processes; Decision Modeling	
Professional Experience	<i>Industrial Engineer</i> May 2013 – Present SIMCON Solutions LLC, Dallas, TX Primary responsibilities include utilizing simulation modeling, statistical data analysis, and custom engineering software development to solve complex problems for clients in a number of different industries. [Company Profile Presentation] • Assisted in development of custom software applications in Matlab and Visual Basic, including custom Microsoft Word report generator and interactive debris analysis application in support of power plant failure mitigation. • Assisted with the Software Quality Assurance (SQA) process for a custom simulation software program used to support power plant failure analysis. • Performed statistical analysis for a risk assessment of landslide-initiated pipeline ruptures using parametric and non-parametric statistical regression techniques. • Assisted with development of custom software applications for proof-of-concept demonstrations to potential clients. • Provided assistance with project proposal writing and review, technical report writing, presentations, and internal administrative document generation.	

Independent Contractor

Jan. 2011 – Aug. 2011

Amplisine Labs, LLC, Lubbock, TX

Developed a web-based deterministic simulation program to model printing operations and generate accurate production cost estimates.

- Developed a thorough understanding of product flow and all business operations pertaining to the printing industry. Collected pertinent information from non-engineering personnel, translated this information into engineering drawings, flow charts, and mathematical models, and further communicated these results to our associate programmers.
- Actively contributed to the engineering design and development of user interfaces for the printing customer and our client, and gained experience in the C#, Javascript, JQuery, .NET, and SQL programming languages.

Computer Skills

Simulation Software: Arena, Simio, Crystal Ball

Programming Languages: Matlab, Visual Basic, VBA, SAS, R, Java, C#

Statistical Packages: SAS, JMP, R, StatFit, ExpertFit, Minitab

Subversion Clients: Tortoise SVN

Design: Autodesk Inventor

Research Experience*Graduate Research Assistant*

Aug. 2011 – May 2012

Texas Tech University, Lubbock, TX

Implemented and analyzed a new and innovative safety culture assessment methodology to assess the physical and cultural safety environment of the B&W Pantex plant, an affiliate of the Department of Defense responsible for the storage and maintenance of nuclear weapons.

- Distributed surveys to employees of each department, analyzed the collected data, generated reports for each department, and presented the results to management personnel

Research Experience for Undergraduates (REU)

May 2010 – Aug. 2010

Case Western Reserve University (CWRU), Cleveland, OH

Improved the storage capacity of a multi-layered fluorescent polymer film for optical data storage applications.

- Developed a working knowledge of optical data storage, installed a spatial filter, conducted sensitivity analyses on input parameters, and analyzed the resulting data to identify optimal spatial filter and beam parameters.
- Presented a poster at Kent State University and submitted a final report to directors of the CWRU Center for Layered Polymeric Systems (CLiPS) REU program, funded by the National Science Foundation (NSF).

Undergraduate Research Assistant

Jan. 2010 – Dec. 2010

Texas Tech University, Lubbock, TX

Developed a new and innovative safety culture assessment methodology to assess the physical and cultural safety environment of the B&W Pantex plant.

- Conducted a thorough literature review on existing safety culture assessment methodologies; conducted on-site process observations, interviews, and focus groups with B&W Pantex employees and management personnel; and assisted in developing and designing the assessment instrument.
- This project resulted in numerous conference publications and poster presentations.

Undergraduate Research Assistant

June. 2009 – Sept. 2009

Texas Tech University, Lubbock, TX

The objective of this project was to improve communications in a mobile ad-hoc network (MANET) by dynamically adjusting retry limits inversely with the speed of the transmitting node.

- Conducted a sensitivity analysis of static retry limits under different operating scenarios (e.g. fading environments, node speed/direction distributions) and evaluated their effect on communication quality. Executed using Network Simulator 2 (NS-2).
- This project resulted in numerous presentation invitations as well as a submitted journal paper.

Teaching Experience

Teaching Assistant Jan. 2014 – May 2014
NCSU ISE Department, Raleigh, NC
 Assisted undergraduate and graduate students with class material, held weekly office hours, graded homework, and proctored exams on occasion.

- ISE 589 – Stochastic Models in Industrial Engineering (Fall 2013)
- ISE 441 – Introduction to Simulation (Spring 2014)

Publications

Peer-Reviewed Journal Articles:

Tejada, J. J., Ivy, J., Wilson, J., Ballan, M. J., Diehl, K., Yankaskas, B. C., King, R. (2013). Combined DES/SD Model of Breast Cancer Screening for Older Women, I: Natural History Simulation. *Submitted to IIE Transactions, In Review*. [[Submitted Paper](#)] [[Online Supplement](#)]

Tejada, J. J., Ivy, J., Wilson, J., King, R., Kay, M., Ballan, M. J., Diehl, K., Yankaskas, B. C. (2013). Combined DES/SD Model of Breast Cancer Screening for Older Women, II: Screening-and-Treatment Simulation. *IIE Transactions, Forthcoming*. [[Accepted Paper](#)] [[Online Supplement](#)] [[Journal Article](#)]

Tejada, J. J., Ballan, M.J., Ivy, J., Wilson, J., King, R. (2013). Calibration, Validation, and Analysis of a Combined DES/SD Model of Breast Cancer Screening for Older Women. Working Paper. [[Working Paper](#)]

Peer-Reviewed Conference Proceedings:

Tejada, J. J., Ballan, M. J., Wilson, J., Ivy, J., Kay, M., King, R., Diehl, K., Yankaskas, B. C. (2013). Combined DES/SD Model of Breast Cancer Screening for Older Women: An Overview. *Proceedings of the 2013 Winter Simulation Conference*. [[Accepted Paper](#)]

Presentations

Poster Presentations with Published Abstracts:

Farris, J. A., Matis, T. I., Patterson, P. E., Phillips, A., Ballan, M., Heinz, M. (2012). Development of a Safety Culture Assessment Methodology at B&W Pantex. Center for Excellence in Logistics and Distribution (CELDi).

Ballan, M. (2010). Optimizing Beam Intensity and Exposure Time for 3-D Optical Data Storage Systems. Center for Layered Polymeric Systems (CLiPS). [[Poster](#)] [[Report](#)]

Honors & Awards

NCSU

- Dean's Fellowship for Industrial Engineering (2012-2013)

TTU

- Industrial Engineering Departmental Academic Achievement Scholarship (2009-2011)
- Edward E. Whitacre Jr. College of Engineering Academic Achievement Scholarship (2009-2011)

Memberships & Activities

Tau Beta Bi (Inducted 2009)
 Alpha Pi Mu (Inducted 2009)
 Institute of Industrial Engineers (2007–Present)
 Raleigh Vipers Fifteens Rugby (2012-2013)

References

Dr. James R. Wilson, Professor
Edward P. Fitts Department of Industrial and Systems Engineering
North Carolina State University
Office Phone: (919) 515-2362
Cell Phone: (919) 606-4031
Email: jwilson@ncsu.edu
Relationship: Research Supervisor

Dr. Jeremy J. Tejada, President and Founder
SIMCON Solutions, LLC
Office Phone: (512) 693-8280
Email: [jtejada@simcon-solutions.com](mailto:jjtejada@simcon-solutions.com)
Relationship: Research Co-Author and Client

Dr. Timothy Matis, Associate Professor
Department of Industrial Engineering
Texas Tech University
Office Phone: (806) 742-3411
Email: timothy.matis@ttu.edu
Relationship: Research Supervisor

Dr. Jennifer Farris, Associate Professor
Department of Industrial Engineering
Texas Tech University
Office Phone: (806) 742-3543
Email: jennifer.farris@ttu.edu
Relationship: Research Supervisor

Aaron Phillips, President and CEO
Amplisine Labs
Office Phone: (806) 433-4883
Email: aphillips@amplisine.com
Relationship: Research Supervisor and Client