

Ali Ahmad, Ph.D.

Education

Ph.D. Industrial Engineering (2007); University of Central Florida, Orlando, FL, USA. GPA: 3.88/4.0

- Dissertation: Design for Auditory Displays: Identifying Temporal and Spatial Information Conveyance Principles; Advisor: Dr. Kay M. Stanney

M.Sc. Industrial Engineering (2003); University of Central Florida, Orlando, FL, USA.

- Thesis: Ontologies for Supply Chain Management; Advisor: Dr. Mansooreh Mollaghasemi

B.Sc. Industrial Engineering (2000); University of Jordan, Amman, Jordan. GPA: 3.75/4.0

- Graduated with honors, and ranked 1st among 85 graduates.
- Participated in an internship in Germany as part of degree requirements, work included implementing a software-based control system design
- Senior Design Project: Barcode-driven Warehouse Inventory System

Experience

Assistant Professor, King Saud University, Riyadh, Saudi Arabia (Oct 11 – Present)

Conducting research as part of Princess Fatimah Alnijris's Research Chair for Advanced Manufacturing Technology (FARCAMT) and Industrial Engineering Department. Research topics include applications of virtual reality in manufacturing, and human performance measurement. Setting up international collaborations to produce cutting edge research that is publishable in scientific international journals. Supervising students in the areas of human systems integrations and simulation modeling and analysis.

Independent Contractor, AXIS Technology Consulting, LLC, Orlando, FL, USA (Mar 10 – Sep 11)

Partnered with several small businesses on 14+ proposals on Human- Systems Integration to the federal government. And developed comprehensive business and marketing plans and negotiated several sub-contract agreements.

Lead Researcher, Design Interactive, Inc., Orlando, FL, USA (May 07 – Feb 10)

CogGauge: Provided technical leadership on the first NASA funded research at Design Interactive to develop a portable gaming application that assesses cognitive state of astronaut crew members. Developed the winning proposal, and managed a team of several researchers and subcontractors towards a successful completion of phase 1 & 2 SBIR efforts.

Learning the human terrain: Provided technical leadership on ONR funded research at Design Interactive to develop a serious game for training socio-cultural communication skills. Developed the winning proposal, and managed a team of several researchers and subcontractors towards a successful completion of phase 1 SBIR effort.

TOMCAT: Worked on SBIR effort funded by the Office of Naval Research (ONR) to develop a Tool for the Optimization of Multimodal Cues for the Advancement of Training System Design. Developed a multi-criteria decision making framework that allows for 1) determining how well existing simulators address targeted training objectives, 2) determining the most cost effective system to address training needs, and 3) conducting a cost/benefit trade-off analysis between alternative system configurations.

Affective Learning: Under a subcontract to VR Sonic, Inc., funded by the Office of Naval Research (ONR) SBIR Program. Worked on developing a framework for incorporating affective learning in virtual training environments. Constructed a lesson-plan structure that allows for the detection of trainees affective states, assessing training context, and inducing appropriate emotional states.

PhD Tech, Siemens Power Generation, Inc., Orlando, FL, USA (May 04 – May 07)

Improve Cost Estimation. Led a green belt project team that aims to identify the factors that affect the cost estimation process for service operations, build effective cost models, and establish the foundations for an automated cost estimation tool. The project resulted in developing a field procedure for cost estimation process with estimated annual savings of \$302,000.

Six Sigma Tool Master. Designed and developed a six sigma tool master that contains descriptions, step by step procedures, and examples for commonly used six sigma and improvement tools. The tool master is equipped with DMAIC and DFSS navigators, and is well regarded within the belt community at Siemens Power Generation.

Monte Carlo Simulation. Utilized Monte Carlo simulation to test the reduction in cycle time for an improved process that had an absence of new process data. Project results: Simulation results show a reduction in the mean and standard deviation of the improved process cycle time. A six sigma black belt project was closed based on the results of simulation for the first time at Siemens.

Weibayes Analysis. Utilized Weibayes Analysis to test the reduction in cycle time for an improved process with a few new data points available. Project results: Adapting the Weibayes Analysis approach from Reliability Engineering in a service setting.

Research Assistant/Associate, University of Central Florida, Orlando, FL, USA (Aug 01 – Aug 07)

Integration of Audio in Interactive Interfaces (Jun 05 – Aug 07)

Doctoral research funded by the Office of Naval Research. This research investigated the utility of incorporating sounds in interactive applications such as virtual reality training systems. The results of the research include identifying literature-based theoretical foundations for conveying temporal and spatial information using audio. In addition, a set of experiments was executed to validate the theorized design principles.

Research in Augmented and Virtual Realities (RAVES) (Aug 02 – May 05)

A multi-disciplinary research effort that investigated various modalities of interaction in augmented and virtual systems. Funded by the Office of Naval Research.

Supply Chain Management Modeling (Jun 02 - May 03)

Master's thesis research, in which I examined the different modeling and simulation approaches that can be used for supply chain optimization. The result of this research was the development of a unique domain descriptor (ontologies; artificial intelligence) that enhances future supply chain simulations.

Transportation Network Modeling (Aug 01 – Jul 02)

A research project funded by Florida Department of Transportation. Developed the funded proposal and utilized traffic simulation techniques to find the optimal (i.e., shortest time) evacuation routes under different congestion levels.

Teaching/ Training Experience

- **Strategic Management of Technology**, Keller School of Business, DeVry University (Orlando, FL; Summer 2011; Fall 2010, Instructor, Graduate).
- **Applied Managerial Statistics**, Keller School of Business, DeVry University (Orlando, FL; Spring 2011, Instructor, Graduate).
- **Operations Management**, Keller School of Business, DeVry University (Orlando, FL; Spring 2011, Fall 2010, Instructor, Graduate).
- **User-Centered Design**, Digital Media Department, University of Central Florida (Orlando, FL; Spring 2011; Instructor, Under Graduate).
- **Human-Computer Interaction**, Industrial Engineering Department, University of Central Florida (Orlando, FL; Fall 2006; Guest Lecturer on Prototyping, Graduate).
- **Discrete Event Simulation**, Industrial Engineering Department, University of Central Florida (Orlando, FL; Spring 2002; Teaching Assistant; Under Graduate).
- **Discrete Event Simulation**, Industrial Engineering Department, University of Central Florida (Orlando, FL; Fall 2001; Teaching Assistant; Graduate).

Training Delivered:

- Taught **Six Sigma Management, Green and Black Belt Training** at Siemens (Orlando, FL), several times 2004-2007.
- Taught a 1-week **Design for Six Sigma** course at Siemens (Orlando, FL), Jun 2005 & Apr 2007.
- Developed and Delivered Training at Siemens (Orlando, FL) on **Process Simulation Modeling and Analysis**, Summer, 2004.
- Developed and Delivered Training at University of Central Florida and Local Company (Orlando, FL) on **Cutting Edge Usability and Human Factors Analysis Techniques**, Summer 2006.

Prepared to Teach

Statistics, Six Sigma, Research Methods, Design of Experiments, Discrete Event Simulation, Statistical Aspects of Simulation, Reliability Engineering, Usability Engineering, Human-Computer Interaction, and Quality Engineering.

Research Interests/Funded Projects:

Virtual Reality Applications in Manufacturing, Human Systems Integration, Integration of Audio in Interactive Interfaces, Modeling Human State/Performance, Usability Engineering, Application of Quality Tools in Non-quality Applications, and Simulation of Interactive Systems.

Funded Research:

- **CogGauge:** A Cognitive Assessment Tool, NASA SBIR Phase II (PI: 2009; \$600,000), while at Design Interactive, Inc., Orlando, FL, USA.
- **Learning the Human Terrain:** Office of Naval Research, Phase I SBIR (PI: 2009, \$100,000), while at Design Interactive, Inc., Orlando, FL, USA.
- **CogGauge:** A Cognitive Assessment Tool, NASA SBIR Phase I (PI: 2008; \$100,000), while at Design Interactive, Inc., Orlando, FL, USA.
- **Spatial Audio- VR Optimizer:** Office of Naval Research, Phase II SBIR (**Project Manager:** 2005, \$300,000), while at University of Central Florida, Orlando, FL, USA.

Fellowships/ Awards

- Delta Epsilon Iota (DEI) **Lifetime Membership in Recognition of Academic Excellence and Leadership Qualities** (Apr 07).
- Recipient of a **Research Fellowship** from University of Central Florida, Orlando, FL, USA 01 –07
- Recipient of a **Merit Fellowship** from University of Central Florida, Orlando, FL, USA Summer 06
- Recipient for **UNRWA Undergraduate Fellowship** through Bachelors education, Amman, Jordan

Certification

- Certified Six Sigma Black Belt, American Society of Quality (ASQ), USA
- Certified Six Sigma Green Belt, Harrington Group, Inc., Orlando, FL, USA
- Certified Six Sigma Green Belt, Siemens Power Generation, Inc., Orlando, FL, USA
- Systems Simulation for Engineers, May 2004, University of Central Florida, Orlando, FL, USA
- Graduate Teaching Certificate Program, University of Central Florida, Orlando, FL, USA

Publications

Referred Journal

Ahmad, A., Stanney, K.M., & Fouad, H. (2009). Theoretical Foundations for Integrating Sound in Interactive Interfaces: Identifying Temporal and Spatial Information Conveyance Principles. *Theoretical Issues in Ergonomics Science*, 10 (2), pp. 161-186.

Goldiez, B.F., Ahmad, A.M., Hancock, P.A. (2007). Effects of Augmented Reality Display Settings on Human Wayfinding Performance. *IEEE Transactions on Systems, Man, and Cybernetics: Part C: Applications and Review*, 37 (5), pp. 839 – 845.

Referred Conference

- Ahmad, A., & Al-Ahmari, A. (accepted for presentation). Virtual Reality in Assembly Simulation. The 2012 international conference on Industry, Engineering and Management Systems (IEMS). Cocoa, FL.
- Ahmad, A., & Al-Ahmari, A. (accepted for presentation). QFD in User Centered Design. The 2012 international conference on Industry, Engineering and Management Systems (IEMS). Cocoa, FL.
- Ahmad, A., & Al-Ahmari, A. (accepted for presentation). Assessment of Cycle Time Reduction Using Monte Carlo Simulation. The 2012 international conference on Industry, Engineering and Management Systems (IEMS). Cocoa, FL.
- Ahmad, A., & Phillips, C. (2009). Socio-cultural Communications Skills Training- A Serious Game Approach. Human Social Culture Behavior (HSCB) Modeling Program, Focus 2010. Chantilly, VA, August 5-7.
- Ahmad, A., & Nahmens, I. (2008). Assessing Six Sigma Project Improvements- A Statistical Perspective. The 14th annual conference on Industry, Engineering and Management Systems (IEMS). Cocoa, FL.
- Nahmens, I., & Ahmad, A. (2007). Design for Lean. The 13th annual conference on Industry, Engineering and Management Systems (IEMS). Cocoa, FL.
- Ahmad, A., Stanney, K.M., & Fouad, H. (2006). Training Pace in Virtual Training Simulations. 5th Annual Auditory Perception Cognition and Action Meeting (APCAM 2006), Houston, TX.
- Ahmad, A., Goldiez B., & Hancock, P. (2005). Gender Differences in Navigation and Wayfinding using Mobile Augmented Reality. 49th Annual Human Factors and Ergonomics Society Meeting (HFES), Orlando, FL.
- Goldiez, B., Ahmad, A., Stanney, K., Hancock, P., & Dawson, J. (2005). Augmented Reality as a Human Computer Interaction Device for Augmented Cognition. Human Computer Interaction (HCI) International (HCII2005), Las Vegas, NV.
- Reeves, L., Ahmad, A., & Stanney, K. (2005). Assessing Influences of Verbal and Spatial Ability on Multimodal C2 Task Performance. Human Computer Interaction (HCI) International (HCII2005), Las Vegas, NV.
- Jones, D., Ahmad, A., Stanney, K.M., & Bowers, C. (2004). Multimodal, Multitask Interaction Design: A Follow up Study to Challenge Unimodal Design Assumptions. 48th Annual Human Factors and Ergonomics Society Meeting, New Orleans, LA.
- Samman, S., Stanney, K.M., Dalton, J., Ahmad, A., Bowers, C., & Sims, V. (2004). Multimodal Interaction: Multi-capacity Processing Beyond 7 ± 2 . 48th Annual Human Factors and Ergonomics Society Meeting, New Orleans, LA.
- Ahmad, A., Mollaghasemi, M., & Rabelo, L. (2003). Ontologies for Supply Chain Management. IIE Annual Conference (IERC). Portland, OR.

Book Chapters

- Stanney, K.M., Schmorow, D., Johnston, M., Fuchs, S., Jones, D., Hale, K., Ahmad, A., Young, P. (2009). Augmented Cognition. An Overview. In F.T. Durso (Ed.), Reviews of Human Factors and Ergonomics, Vol. 5. Published by the Human Factors and Ergonomics Society (HFES).
- Champney, R., Milham, L. M., Carroll, M.B., Ahmad, A., Stanney, K.M., Cohn, J., and Muth, E. (2008). Training Effectiveness and Evaluation Applications. In D. Schmorow, Cohn, J., & D. Nicholson (Eds.), The PSI Handbook of Virtual Environment for Training and Education. Praeger Security International.
- Reeves, L., Ali M. Ahmad, & Stanney, K.M. (2005). Assessing Influences of Verbal and Spatial Ability on Multimodal C2 Task Performance. In D.D. Schmorow (Ed.), Foundations of Augmented Cognition. Routledge.

Demo/Poster

Dalton, J. M., Ahmad, A., and Stanney, K. (2004). Command and control resource performance predictor (C2RP2). In Proceedings of the 6th International Conference on Multimodal interfaces (State College, PA, USA, October 13 - 15, 2004). ICMI '04. ACM Press, New York, NY, 321-322.

Ahmad, A., Hale, K., Greenwood-Ericksen, A., Baskin, A. (2009). CogGauge- A Cognitive Assessment Tool. A Poster presented at Human Computer Interaction International (HCII2009). San Diego, CA. July 19-24.

Reviewer

- Proposal Reviewer for NASA Experimental Program to Stimulate Competitive Research (EPSCoR) Program.
- Proposal Reviewer for King Abdulaziz City for Science and Technology (KACST).
- Editorial and Review Board (advisory member) for Schmorrow, D.D. & Stanney K.M. (Eds.; 2008) Augmented Cognition: A Practitioner's Guide. Published by Human Factors and Ergonomics Society. ISBN 978-0-945289-33-3.
- Reviewer for the International Journal of Human-Computer Interaction.
- Reviewer for the Journal of Cognitive Engineering and Decision Making.
- Reviewer for the Journal of Management and Engineering Integration.
- Reviewer for the Journal of King Saud University- Engineering Science.

Skills

Platform and General tools: Windows, Office Applications

Statistical Packages: Minitab, SAS and SPSS

Fitting Distributions: Stat::Fit, and Expert Fit

Data Mining: PolyAnalyst, and SAS-Enterprise Miner

Simulation packages: @RISK, Crystal Ball, Arena, Process Model and P-SimJ

Optimization and Decision Support: WinQSB, Lindo, and ExpertChoice

Mathematical tools: MATLAB including Simulink, Mathcad, and Mathematica

Project Management: Microsoft Project

Programming: Visual Basic and ASP (also VBScript, and Java Script)

Design tools: Photoshop, Illustrator and Print Shop

Training

- New Faculty Preparation Workshop, 2-days, King Saud University, Riyadh, Saudi Arabia
- Design for Six Sigma- Service Supplement. Sigma Pro. Orlando, FL, USA
- Six Sigma Black Belt Training. Harrington Group/ASQ, Orlando, FL, USA
- Change Leadership. Siemens Power Generation, Inc., Orlando, FL, USA
- Six Sigma Project Coaching. Siemens Power Generation, Inc., Orlando, FL, USA
- Minitab For Windows. Minitab Training Division. Orlando, FL, USA
- ARIS Web Designer. Siemens-Westinghouse Learning Campus, Orlando, FL, USA
- Siemens Process Framework. Siemens Learning Campus, Orlando, FL, USA
- Leadership Institute 2004. University of Central Florida, Orlando, FL, USA
- ISO Interpretation and Appreciation. LLOYD, Amman, Jordan
- Continuous Improvement -Team Management. Jordan Telecom. Corp., Amman, Jordan
- Web-based Course Development Familiarization. Siemens Power Generation, Inc., Orlando, FL, USA
- Basic CITI Course in the Protection of Human Research Subjects. Online Training, part of University of Central Florida affiliation with CITI, Orlando, FL, USA
- Human Factors Issues in Auditory Warning Signal Design. Workshop at the 29th Human Factors and Ergonomics Conference (HFES), Sept 26-30, 2005, Orlando, FL, USA