Isaac J. Tetzloff

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Experience

American Airlines – Fort Worth, TX

Consultant, Operations Research & Advanced Analytics **02/2015 - Present**

- Developed and maintain the optimization engine for Daily Open Time Coverage/Reserve Assignment System (DOTC/RAS), ensuring the optimal solution maintains contractual obligations while optimizing pilot preferences
- Create Tableau dashboards used by multiple airports and business units to provide information about gate changes, spare crew staffing, airport congestion and gate check bags
- Assist in the development of simulation models and analyses for flight dispatchers and terminal bag room operations to perform a variety of what-if scenarios for planning and policy creation
- Perform many ad hoc analyses for a variety of airports and business units ranging from baggage data, flight service delay prediction, turn time analysis, baggage pier assignments, schedule changes, predicted taxi times, and assignment of crews for recurrent training

Purdue University – West Lafayette, IN

Graduate Research Assistant, School of Aeronautics and Astronautics **08/2007 - 01/2015**

- Developed Fleet Level Environment Evaluation Tool (FLEET) to assess the impact of current and future aircraft on fleet-level emissions using mixed integer linear programming based on resource allocation and fleet assignment problems
- Expanded original FLEET model to handle additional airports, aircraft models, airlines and objectives
- Examined impact of future supersonic aircraft on fleet-level emissions and productivity

Instructor, School of Engineering Education **01/2013 - 06/2014**

- Served as instructor for ENGR 132 Transforming Ideas to Innovation II, one of two core courses in Purdue's First Year Engineering Program
- Developed course material and curriculum for solving complex problems from formulation to implementation in a team-based environment using Excel and MATLAB

Graduate Teaching Assistant, School of Aeronautics and Astronautics **08/2008 - 12/2013**

- Created, solved and graded homework, assessments and projects for AAE 550 Multidisciplinary Design Optimization, AAE 551 Design Theory and Methods for Aerospace Systems, and AAE 451 Aircraft Design

Orbital Sciences Corporation – Dulles, VA

Engineering Intern **Summer 2006, 2007 & 2011**

- Performed systems engineering tasks on the Cygnus space vehicle as part of the COTS/CRS Program, including evaluating and implementing a Test Like You Fly philosophy into Cygnus testing procedures (2011)
- Modeled multiple-flexible-body systems within MATLAB and Simulink for use in future satellite designs (2007)
- Developed a software tool using MATLAB and STK/Connect rapid re-planning of a sequence of burns to bring a spacecraft from a geosynchronous transfer orbit to a geostationary orbit (2006)

Education

Purdue University – West Lafayette, IN

Doctor of Philosophy, Aeronautics and Astronautics **05/2010 - Present**

- PhD research being completed in absentia, anticipated completion 12/2019
- Dissertation: *Formulating an Allocation and Assignment Problem to Evaluate the Fleet-Level Environmental Impact of Aviation*

Master of Science, Industrial Engineering **05/2010 - 05/2013**

Master of Science, Aeronautics and Astronautics **08/2007 - 05/2010**

- Thesis: *An Allocation Approach to Investigate New Aircraft Concepts and Technologies on Fleet-Level Metrics*

Massachusetts Institute of Technology – Cambridge, MA

Bachelor of Science, Aerospace Engineering with Information Technology **09/2003 - 06/2007**

- Minor: Spanish

Bachelor of Science, Management Science **09/2003 - 06/2007**

Journal Articles

[1] Tetzloff, I. J. and Crossley, W. A., "Measuring Systemwide Impacts of New Aircraft on the Environment," *Journal of Aircraft*, Vol. 51, No. 5, Sept. 2014, pp. 1483–1489, doi: `https://doi.org/10.2514/1.C032359`.

Certifications

Advanced Graduate Teaching Certificate — *Purdue University Center for Instructional Excellence*

Technical Skills

Advanced: Java, LaTeX, MATLAB, Microsoft Office, SAS, SQL, Tableau

Intermediate: Gurobi, Python, R, Simio, Simulink, Xpress

Awards

Estus H. and Vashti L. Magoon Award — *Award for Graduate Student Instructors (2014)*

Purdue Forever Fellowship — *School of Aeronautics and Astronautics (2011 - 2013)*

NASA GSRP Fellowship Award — *NASA Langley Research Center (2009 - 2012)*

MIT Stewart Award — *Institute Award for Contributions to Student Life (2007)*

MIT FSILG Senior Legacy Award — *Student Life Award for Contributions to Greek Life (2007)*

Affiliations

Airline Group of the International Federation of Operational Research Societies *(2016 - Present)*

American Institute of Aeronautics and Astronautics (AIAA) *(2003 - 2016)*

Institute for Operations Research and the Management Sciences (INFORMS) *(2008 - 2016)*

Society for Industrial and Applied Mathematics (SIAM) *(2009 - 2014)*

Tau Beta Pi Engineering Honor Society *Indiana-Alpha Chapter, Purdue (2008)*

Sigma Gamma Tau Aerospace Engineering Honor Society *Alpha Chapter, Purdue (2007)*

Order of Omega Greek Honor Society *MIT Chapter (2007)*

Delta Tau Delta International Fraternity *Beta Nu Chapter, MIT (2003)*

Volunteering

MIT Alumni Association, Educational Counselor *(2007 - Present)*

MIT Alumni Association, Class of 2007 Treasurer *(2012 - Present)*

Leadership

Aero Assist Graduate Student Organization, Treasurer *(2010 - 2013)*

Sigma Gamma Tau, Treasurer *(2008 - 2009)*

MIT Interfraternity Council (IFC), President *(2005 - 2006)*

MIT Interfraternity Council (IFC), Executive Assistant *(2004 - 2005)*

MIT Undergraduate Advising and Academic Programming, Associate Advisor *(2004 - 2007)*

Delta Tau Delta Fraternity, Risk Manager *(2006 - 2007)*

Delta Tau Delta Fraternity, New Member Educator *(2004 - 2006)*