Mark Pedigo, PhD

St. Louis MO
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PROFESSIONAL EXPERIENCE

DATA SCIENTIST AT EPSI   2016 - PRESENT

EPSi develops integrated financial analytics support, budgeting, and planning solution software for the healthcare industry.

My responsibilities include the following.
- Budget forecasting models. Develop algorithms, create proofs of concept, implement models in both a traditional data science platform (i.e., Python ecosystem) and with cloud-based solutions (Amazon Web Services), present results to executive-level management, and demo with clients.
- Healthcare finance visualization prototypes. Developed visualizations of healthcare financial trends using Tableau and PostgreSQL.

INSTRUCTOR AT WASHINGTON UNIVERSITY IN ST. LOUIS, UNIVERSITY COLLEGE   2012 - PRESENT

I teach as an adjunct instructor at Washington University in St. Louis, University College in the evenings. Courses include the following.
- *Introduction to Data Science*. Python data science ecosystem: NumPy, SciPy, pandas, matplotlib, scikit-learn
- *Introduction to Programming in Python*. Flow of control, strings, functions, files, exceptions, data structures (lists, tuples, dictionaries, sets), OOP, pandas basics, graphing fundamentals
- Other courses: *Introduction to Programming in R*, *Introduction to Statistics*, *Foundations of Mathematics*, *Differential Equations*, *Calculus II-IV*

DATA ANALYST/DEVELOPER AT BOOZ ALLEN HAMILTON   2014 - 2016

Booz Allen Hamilton is an IT consulting firm, headquartered in the Washington DC area. They provide consulting, analysis, and engineering services to public and private sector clients.

Client: NASA
- Project Cost Estimating Capability (PCEC). Developed an Excel add-in (in VBA) with a robust and transparent collection of NASA cost-estimating relationships (CERs), work breakdown structures and algorithms that facilitates the creation of cost estimations for robotic/ crewed spacecraft and launch vehicles.
- Correlation Task. This project investigated correlations between cost and schedule for historical NASA missions. Acted as a statistics/mathematics subject matter expert (SME), wrote a literature review of pertinent material and interacted weekly with clients. The correlation team presented the results at NASA headquarters in Washington D.C., and wrote a paper presented at the 2015 International Cost Estimating and Analysis Association (ICEAA) Conference
- Joint Confidence Level (JCL) Assessments. The JCL Assessments project is a training environment for non-cost estimators who need a basic understanding of cost estimating (e.g., Project Managers). Developed Project Management tool which incorporated Monte Carlo simulation, Gantt charts.

Client: Scott Air Force Base
- A6 CIO Technical Recommendations. As a deliverable for this project, co-authored a document which provided recommendations to the Air Mobility Command Communications Directorate (AMC A6) to follow to successfully incorporate data analytics and visualization techniques.
- Capabilities Based Assessment (CBA). A CBA provides recommended solutions to identified capability gaps that meet an established need. On this project, served as a data analysis/technology SME.

OTHER
From 1998-2001, I developed children's video games at *Humongous Entertainment* in Seattle. I have taught at various universities, community colleges, and technical schools in the Seattle and St. Louis areas. I also lived in the Netherlands for a time in 2001-2002. Details available upon request.

EDUCATION

Doctor of Philosophy, Mathematics, Saint Louis University   2005 – 2014
Master of Natural Science, Southeast Missouri State University   1994 – 1996
BS, Computer Science, University of Missouri-Rolla   1989 – 1992

Professional Development

DataCamp   2018-2019

- *Data Scientist Career Track*, Python. Courses: Introduction to Python, Intermediate Python, Python Data Science Toolkit (I, II), Importing Data in Python (I, II), Cleaning Data in Python, pandas Foundations, Manipulating Data Frames with pandas, Merging Data Frames with pandas, Intro to SQL for Data Science, Introduction to Databases in Python, Introduction to Data Visualization with Python, Interactive Data Visualization with Bokeh, Statistical Thinking in Python (I, II), Joining Data in SQL, Supervised Learning with scikit-learn, Machine Learning with the Experts: School Budgets, Unsupervised Learning in Python, Deep Learning in Python, Network Analysis in Python (I)

Coursera   2016-2017

- *Executive Data Science*, 5 course specialization, John Hopkins University
- *Machine Learning Foundations: A Case Study Approach*, University of Washington
- *Customer Analytics*, University of Pennsylvania

Harvard Extension School   2015 – 2016

- Statistical Modeling
- Big Data Analytics (Hadoop, Spark, Java API, mahout, Neo4j, MySQL)

Explore Data Science certificate, Metis (developed by Booz Allen Hamilton)   2015

- Topics: distance metrics, dimensionality reduction, transformations, aggregations, clustering, regression, classification, recommendation, genetic algorithms

SKILLS

Scripting	Python (incl. pandas, NumPy, SciPy, statsmodels, scikit-learn), Intermediate R
Visualization	Tableau, Python (matplotlib), High Charts
Cloud	Amazon Web Service (AWS) SageMaker
Forecasting	SARIMA/ARIMA, Exponential Smoothing, AWS DeepAR
Database	Intermediate SQL skills

HONORS AND AWARDS

- NASA Software of the Year Award Honorable Mention (2015)
- NASA Agency Honor Award (2015)
- NASA Marshall Space Flight Center Tech Transfer Team Award (2015)
- NASA Marshall Space Flight Center Software of the Year Award (2015)
- NASA Cost Estimating Team Award (2015)

PUBLICATIONS

- "On the lower central series of the free nilpotent groups of finite rank." Pedigo, Mark, R. Blyth, Communications in Algebra, forthcoming.
- Huang, Sidi, M. Pedigo, C Shaw, K. Odom, *Data-Driven Guidelines for Correlation of Cost and Schedule Growth*. Conference presentation to the International Cost Estimating and Analysis Association (ICEAA Conference), March 30, 2015.
- Ma, J., Pedigo, M., Gildea, K., & Holcomb, K., *Proactive Safety Management: Maintenance and Ramp Line Operations Safety Audit (LOSA) Year 2*. Oklahoma City, OK: FAA Civil Aerospace Medical Institute.
- Ma, J., Pedigo, M., Blackwell, L., Hackworth, C., Holcomb, K., & Gildea, K. (2009). *20 Years of the Line Operations Safety Audit (LOSA) Program: From Flight Operations to Maintenance and Ramp Operations*. Oklahoma City. OK: FAA Civil Aerospace Medical Institute.
- Goldwasser, Michael, and Pedigo, Mark. (2008). *Online, Non-preemptive Scheduling of Equal-Length Jobs on Two Identical Machines*. ACM Transactions on Algorithms (TALG) archive, 5(1). A preliminary version appeared in Proceedings of the Tenth Scandinavian Workshop on Algorithm Theory (SWAT), 113-123.