ROBERT W SZAREK

szarekr@gmail.com • www.robertszarek.com • Chicago, Illinois

Highly skilled professional with a Master's Degree in I-O Psychology, specializing in people analytics, statistical modeling, and the application of machine learning techniques. I have deep expertise in R, Linux, and Python, which helps me design and develop custom machine learning models and Shiny dashboards to solve complex business problems.

SKILLS

- Machine learning: GLM, tree-based, clustering, PCA, SVM, deep learning, LLM
- NLP: tfidf, bag of words, word vectors, word embeddings, BERT
- R: shiny, dplyr, ggplot2, tidymodels caret, psych, markdown, quarto
- Python: sklearn, numpy, pandas, jupyter, matplotlib, SpaCy, polars
- Traditional experimental research and statistical hypothesis testing
- Psychometrics: (DIF, IRT, CTT), survey and test development and analysis
- Software engineering best practices with unit testing, Docker and Git
- AGILE/SCRUM project methodology
- Visualizations and storytelling with ggplot2, plotly and Tableau
- Native fluency in Polish, English, near-fluency in German, familiarity with Spanish

EXPERIENCE

Human Factors Researcher, Federal Aviation Administration   May 2024 – Current

As a contractor for the FAA's Office of Aviation Safety (AVS), I perform data analysis to support human factors research and regulatory development to improve safety and efficiency.

- An independent contract role to combine statistical significance testing with software programming to automate and scale flight simulator pilot performance studies.
- Build data pipelines in R that ingest, test and export hypothesis tests that are published in formal research studies.
- Leverage automation to streamline analytics, reducing time to completion and errors.

Senior Data Scientist, Unum   June 2021 – Current

At Unum, I blend cutting edge scientific analyses with compelling visualizations and storytelling to help improve how we work together.

- Built an enterprise-grade Shiny webapp hosted on a Linux Server that serves network analyses. in real-time to help solve career progression.
- Built a custom machine learning model to identify gender pay-gap equity.
- Perform Repeated Measures ANOVA to compare productivity levels of hybrid employees.
- Use NLP to summarize open-ended text such as survey responses and job descriptions.
- Built a custom skills database from mining employee Workday profiles and resumes.
- Built an enterprise Tableau dashboard to report volunteer and donation rates.
- Built a predictive model from candidate assessment data to predict employee job performance.
- Built a custom in-house R package to automate Teradata server connections, API data requests, and custom functions for analyzing disparate impact for entry-level roles.

I/O Psychologist, Checkster   October 2020 – March 2021

At Checkster, I served as a consultant to ensure clients were employing best practices in the development, deployment and interpretation of survey responses.

- Led a project initiative to develop a machine learning algorithm to predict job performance from reference-checking survey data.
- Consulted clients on topics such as: survey content, rating scales, benchmarking analytics, etc.
- Created a repository of centralized knowledge of I/O Psychology best practices and principles.
- Cluster-analyzed job classifications to streamline competencies assessed in surveys.

Consultant/Researcher, I/O Solutions   **September 2012 – September 2020**

> *At IOS, I provided expert consultation to government agencies on employee selection policies, developed automated systems and machine learning algorithms to streamline operations and delivered in-depth statistical analyses and reporting solutions to improve testing practices and scale analyses.*

- Consulted police & fire chiefs, HR managers and other key government officials on policies and practices in employee selection and minimizing adverse impact and bias in testing.
- Compiled and produce rigorous statistical technical documentation outlining the various deliverables associated with a client project.
- Automated numerous analytical processes to save employer thousands of dollars in manual labor.
- Integrated a dynamic feedback reporting system leveraging R and Markdown to create automated customizable feedback reports for clients.
- Built an interactive Shiny R user dashboard to import, pre-process, score, and summarize datasets containing written examination data.
- Developed machine learning algorithms (regression) to set cut-scores on high-stakes employment tests administered nationally to over 100,000 candidates.
- Served as project manager for agencies seeking to develop custom cognitive tests or interviews.
- Ran statistical analyses to drive organizational change including: ANOVA, t-test, chi-square, linear, multiple and logistic regression, correlations, factor and cluster analysis, etc.
- Compiled normative databases utilizing R, Python or SQL to drive normative exam standards.

ACHIEVEMENTS & PROFESSIONAL AFFILIATIONS

Private Pilot License, Aircraft Single Engine Land, FAA   **September 2015**

The Yellow Tulip, Volunteer   **June 2022 – January 2025**

- Develop a Tableau Dashboard to streamline survey responses to monitor, in real time, volunteer sentiment.
- Gauge feedback concerning past events to help improve the experience for the future.
- Consult on survey strategy, assessment technique, and data storage best practices.

Society for Industrial Psychologists (SIOP)   **October 2020 – October 2023**

- Built a custom R package for annual membership data cleaning.
- Laid the foundation for a data infrastructure plan to help streamline the access and retention of sensitive data.
- Build an R shiny dashboard to provide an interactive experience to view membership data.

Fox Flying Club Board Member   **November 2017 – January 2019**

- Researched the ability for our aircraft to acquire a Cirrus SR-20 G2 for our fleet.
- Investigated financing options, expected maintenance, and member interest in flying new aircraft types.
- Performed data analysis on membership sentiment to establish long term strategy for the club.

EDUCATION

Elmhurst College, M.A. Industrial-Organizational Psychology   **2010 – 2012**

Northeastern Illinois University, B.A. Psychology/Philosophy   **2004 – 2009**

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