Keith W. Dowd

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DATA ANALYTICS, MACHINE LEARNING & SOFTWARE INTEGRATION

Data science and machine learning professional with over 9+ years of experience conducting data analysis, machine learning, and communicating findings to leadership and stakeholders across multiple industries. Strong background in applied statistics and research methodology. Able to effectively communicate research results and technical information to experts and non-technical audiences. Strategic thinker with strong technical expertise in the Python data science stack and integration of data science solutions into software products. Operates with a sense of urgency and thrives in a fast-paced work environment that requires quick turnaround and tight deadlines.

Core competencies and skills include:

**Agile Development · Analytics · Data Management · Machine Learning · NLP · Statistics
Docker/Kubernetes · Hadoop · Java/Kotlin · Python · R · Spark · SQL/NoSQL · Tableau**

PROFESSIONAL EXPERIENCE

U.GROUP · Washington, DC · 2018 – Present
Best-in-class technology company with an award-winning creative and design team that provides leading-edge data science and software products, outstanding technology solutions, and integrated marketing strategies.

Data Scientist
Collaborate with clients to make looking up data, drawing connections, anticipating shifts and changes, and deciding on hard business decisions faster, easier, smarter, and more scalable by leveraging machine learning, natural language processing, and tools like Python, Spark, Hadoop, and a range of different SQL and NoSQL databases.

- Develop an entity resolution pipeline that includes an evaluation framework and set of benchmarking metrics to reduce error rate in matching database observations across multiple data sources that do not share a common primary key.
- Evaluate a risk score model responsible for scoring the threat to U.S. interests of company mergers and acquisitions led by foreign actors and propose and implement adjustments to improve the model's data coverage, feature engineering, and prediction accuracy.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES · Washington, DC · 2017 – 2018
Non-profit organization representing all U.S. and Canadian medical schools, teaching hospitals and health systems, academic and scientific societies, and faculty members, medical students, and resident physicians.

Data Scientist
Planned and executed research, development, and implementation of new data-driven tools for use in medical school admissions and residency selection by conducting data analyses, model building, validation studies, and evaluating the psychometric properties, benefits, and risks of these new tools.

- Led the data analytic efforts for an online, web-based resource to help residency applicants make informed decisions about the residency application process by allowing for the exploration and comparison of residency programs. Responsible for data modeling, data visualization, evaluation of similarity measures for comparing residency programs, and supporting collaboration between business and data teams. (see Residency Exploration Tool)

- Served as data lead for the Standardized Video Interview project responsible for conducting analyses on interview data, drafting research plans, and writing reports. Conducted requirements analyses with IT, leveraged audio and video data to build computer scoring models, and automated score report and distribution pipeline using Python. Communicated findings to stakeholders via reports and presentations. (see AAMC Standardized Video Interview)

HELIOCAMPUS · Bethesda, MD · 2017 – 2017

An analytics and data visualization platform-as-a-service company serving colleges and higher education institutions throughout the U.S.

Data Scientist

Worked closely with multiple client partners to understand their analytical needs, evaluate key performance metrics, analyze data and trends, and develop complex models, dashboards, and reports.

- Developed subject matter expertise in the HelioCampus data platform, guided client partners in the use of the platform to answer strategic institutional questions, and worked closely with senior leaders to maximize use of the platform.
- Performed ad hoc and trend analyses to discover actionable information in support of management decision making, and leveraged enterprise business intelligence tools, SQL queries, and the Python data science stack to develop complex models, dashboards, and reports.
- Delivered ongoing training and support to client stakeholders and contributed input to the product roadmap for analytical tools and solutions.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES · Washington, DC · 2011 – 2017

Non-profit organization representing all U.S. and Canadian medical schools, teaching hospitals and health systems, academic and scientific societies, and faculty members, medical students, and resident physicians.

Sr. Data & Research Analyst II (2016 – 2017)

Supported research and development efforts to create new data-driven products and tools to help medical students, advisors, residency directors, and other graduate medical education stakeholders make evidenced-based decisions about admissions and selection.

- Contributed to decisions about research methodology, psychometrics, and analytic approaches to support a broad range of work and built partnerships with leadership and stakeholders to accomplish goals.
- Leveraged data in novel ways to provide actionable insights and recommendations to stakeholders in graduate medical education. For example, developed materials that provide data-driven recommendations for how many programs residency applicants should apply to for optimizing the costs of applying and probability of matching to a program. (see Apply Smart: New Data to Consider)

Sr. Measurement Research Specialist (2011 – 2016)

Supported research on the MCAT exam by managing research, data analysis, and reporting. Responsible for translating research questions into statistical analyses, conducting data analyses, and communicating results to leadership and stakeholders in reports and presentations.

- Managed all requests for MCAT data by identifying appropriate data to meet request and compiling datasets using SPSS, SAS, and SQL database programming. In addition, drafted documentation, performed data quality control, and communicated with IT and Legal to draft data licensing and usage agreements
- Developed data warehouse to store data for a longitudinal research study in collaboration with IT and senior MCAT research staff by identifying and translating business requirements into technical database specifications, auditing data collection, and organizing data for research and reporting.

- Managed project timeline, resources, and data analysis for annual report to over 150+ U.S. and Canadian medical schools that describes appropriate use and interpretation of MCAT exam scores for admissions decision making.

ANALYST INSTITUTE · Washington, DC · 2010 – 2011
Data analysis and research clearinghouse for non-profit and progressive political organizations.

Data Analyst
Designed, implemented, and evaluated behavioral change research to understand and increase voter registration, turnout, and mobilization in collaboration with non-profit and political organizations.

- Lead data analyst for 5+ client projects responsible for designing, collecting, and organizing survey research using online survey tools (SurveyMonkey, Qualtrics) and SQL database programming language. Also, analyzed data (using Stata), drafted client technical reports, and presented findings to stakeholders by phone and webinar.

NCSU ADULT DEVELOPMENT LABORATORY · Raleigh, NC · 2009 – 2010
Research laboratory at North Carolina State University with over 1MM in grant funding from the National Institute on Aging (NIA) to conduct research to understand cognitive functioning in aging and older adults, as well as throughout the adult lifespan.

Research Manager
Managed research laboratory; responsibilities included recruiting and scheduling students and community volunteers to participate in research studies; managing data collection, data storage, and data analysis; administering financial accounts earmarked for lab expenses; and overseeing 5+ undergraduate research assistants.

- Developed *MouseTracer* software to analyze decision-process data used by senior researchers to identify consumer decision strategies used among older adults. (see Queen, Hess, Ennis, **Dowd**, & Gruhn, 2012)

WAKE FOREST UNIVERSITY · Winston-Salem, NC · 2007 – 2009
Graduate student in the Psychology Department at Wake Forest University.

Instructor, Statistics, & Research Methodology
Taught a statistics & research methodology (e.g., single/multivariate regression, correlation) course to 20+ undergraduate students each semester for 4 semesters.

EDUCATION

MASTER OF ARTS in Psychology
Wake Forest University · Winston-Salem, NC · 2007 – 2009

BACHELOR OF SCIENCE in Psychology (MINOR in Sociology, Statistics)
Appalachian State University · Boone, NC · 2003 – 2007

PRODUCTS

AAMC Standardized Video Interview. (2019). Retrieved from https://students-residents.aamc.org/applying-residency/applying-residencies-eras/aamc-standardized-video-interview.

Residency Exploration Tool. (2019). Retrieved from https://www.residencyexplorationtool.org.

Apply Smart: New Data to Consider. (2018). Retrieved from https://students-residents.aamc.org/applying-residency/article/apply-smart-data-consider.

PUBLICATIONS

Bird, S. B., Hern, G., Blomkalns, A., Deiorio, N. M., Haywood, Y., Hiller, K. M., Dunleavy, D. M., **Dowd, K. W.** (In press). Innovation in Residency Selection: The AAMC Standardized Video Interview. *Academic Medicine*.

Searcy, C. A., **Dowd, K. W.**, Hughes, M. G., Baldwin, S., & Pigg, T. (2015). Association of MCAT scores obtained with standard vs extra administration time with medical school admission, medical student performance, and time to graduation. *Journal of the American Medical Association*, *313(33)*, 2253-2262.

Dowd, K. W., Petrocelli, J. V., & Wood, M. T. (2014). Integrating information from multiple sources: A metacognitive account of self-generated and externally-provided anchors. *Thinking and Reasoning*, *20(3)*, 315-332.

Dunleavy, D. M., Kroopnick, M. H., **Dowd, K. W.**, Searcy, C. A., & Zhao, X. (2013). The predictive validity of the MCAT exam in relation to academic performance through medical school: A national cohort study of 2001-2004 matriculants. *Academic Medicine*, *88(5)*, 666-671.

Monroe, A., Quinn, E., Samuelson, W., Dunleavy, D., & **Dowd, K. W.** (2013). An overview of the medical school admission process and use of applicant data in decision-making: What has changed since the 1980s? *Academic Medicine*, *88(5)*, 672-681.

Queen, T. L., Hess, T. M., Ennis, G. E., **Dowd, K. W.**, & Gruhn, D. (2012). Information search and decision-making: Effects of age and complexity on strategy use. *Psychology and Aging*, *27(4)*, 817-824.

Zhao, X., **Dowd, K. W.**, & Searcy, C. A. (2012). Assessing statistics and research methodology in the MCAT exam. *Chance*, *25(3)*, 11-17.

Petrocelli, J. V. & **Dowd, K. W.** (2009). Ease of counterfactual thought generation moderates the relationship between need for cognition and punitive responses to crime. *Personality and Social Psychology Bulletin*, *35(9)*, 1179-1192.

Yearwood, D. L., **Dowd, K. W.**, & Starsoneck, L. (2008). Exploring alternatives for improving child support application filing rates within the context of civil protection order cases. *Children and Youth Services Review*, *30(7)*, 821-833.

McElroy, T. & **Dowd, K. W.** (2007). Action orientation, consistency, and feelings of regret. *Judgement and Decision Making*, *2(6)*, 333-341.

McElroy, T. & **Dowd, K. W.** (2007). Susceptibility to anchoring effects. How openness-to-experience influences responses to anchoring cues. *Judgment and Decision Making*, *2(1)*, 48-53.