Dana Udwin

@ dana.udwin@gmail.com   ✆ (301) 806-0827   📍 Baltimore, MD   in https://www.linkedin.com/dudwin

EDUCATION

Doctor of Philosophy (Ph.D.), Biostatistics | Brown University, Providence, RI
Master of Science (M.S.), Statistics | University of Massachusetts Amherst, Amherst, MA
Bachelor of Arts (B.A.), Mathematics, Minor: East Asian Lang. and Literature | Smith College, Northampton, MA

PROFESSIONAL EXPERIENCE

Brown University, Department of Biostatistics, Providence, RI   **Sept 2017 - Present**
Research Assistant
Conduct dissertation research in interpretable machine learning, non-additive variance estimation and factor analysis.

Meta, New York, NY   **Jun 2021 - Aug 2021**
Data Scientist Intern

- Translated millions of Facebook App for Android clicks into user-level chronological metrics that reflect depleting cellular data, an actionable signal that the application should activate data-saving mode, positioning company to deliver optimal application performance.
- Segmented along these derived features to reveal those data-constrained users who require data-saving mode, but are not self-identified.
- Administered survey to Japanese consumers to validate that model-discovered data-constrained individuals are 2.7x as likely to "always" be concerned about running out of data, providing proof-of-concept that this unsupervised segmentation strategy is ready for worldwide use.

RAND Corporation, Arlington, VA   **Jun 2020 - Aug 2020**
Summer Associate

- Forecast year-over-year attrition in the Air Force using a recurrent neural network, to inform field-specific recruitment and retention strategy.
- Implemented Blinder–Oaxaca decomposition to break servicemember separation rates into (i) that which is predictable due to population shift, and (ii) that which is revealed through modeling, engendering insight and trust surrounding machine learning and formalizing its advantage.

MassMutual Financial Group, Amherst, MA   **Aug 2014 - Aug 2017**
Junior Data Scientist

- Modeled likelihood to purchase life insurance in order to maximize return on direct mail advertisements.
- Operationalized customer service program by constructing a data-processing pipeline that links disparate databases, ranks policyholders according to their predicted satisfaction then presents the information in a web application, streamlining call center representatives' outreach to disgruntled customers.
- Revamped corporate accounting through a full stack construction that ingests employees' expensed charges from all company-issued credit cards and dynamically summarizes the expenditures in a multi-page interactive visualization, eliminating manual reporting.
- Created behavioral profiles of customers using non-parametric k-means clustering to inform targeted marketing campaigns.

ADDITIONAL RESEARCH EXPERIENCE

Brown University, Department of Biostatistics, Providence, RI   **Sept 2017 - Dec 2017**
Research Assistant

- Performed propensity score analysis on observational study of post-motor vehicle collision emergency department visits to identify causal link between receiving opioids and continued drug dependence.
- Designed and implemented sensitivity analyses to determine robustness of results under confounding.
- Restructured code base to facilitate collaboration and support reproducibility.

National Institute of Standards and Technology, Gaithersburg, MD · · · · · · · · · · · **Jun 2013 - Aug 2013**
Summer Undergraduate Research Fellow
Analyzed performance of face recognition technologies in point-and-shoot video using 1.8 million frame-by-frame between-video similarity scores and metadata.

Smith College, Department of Mathematics and Statistics, Northampton, MA · · · · · **Jan 2013 - Dec 2013**
Research Assistant
Coauthored instructor's guide with code addendum for STatistics Education Web (STEW), the American Statistical Association's online resource for peer-reviewed K-12 lesson plans.

TECHNICAL SKILLS

Software	R, Python, C++, SQL, Bash, SAS
Machine Learning Libraries	TensorFlow, scikit-learn
Visualization	`ggplot`, Shiny, HTML, CSS, JavaScript
Big Data	Spark, HDFS, Vertica
Workflow	Git, LaTeX

TEACHING

Teaching Assistant, Causal Inference, Brown University, Department of Biostatistics

Co-Instructor, Biostatistics Workshop, Brown University, Department of Biostatistics

Grader, Statistical Inference I, Brown University, Department of Biostatistics

Teaching Assistant, Bayesian Statistical Analysis, Brown University, Department of Biostatistics

Teaching Assistant, Applied Statistics, Brown University, Summer@Brown

Teaching Assistant, Applied Generalized Linear Models, Brown University, Department of Biostatistics

Teaching Assistant, General, Smith College, Department of Mathematics and Statistics

Grader, Introduction to Statistics, Smith College, Department of Mathematics and Statistics

TALKS

Co-Instructor, R Summer Workshop Series · **2016**
Western Mass Statistics and Data Science Meet-Up, Northampton, MA

Guest Lecturer, d3 and Crossfilter · **2015**
Western Mass Statistics and Data Science Meet-Up, Northampton, MA

PUBLICATIONS

Darnell, G., Smith, S.P., **Udwin, D.**, Ramachandran, S., Crawford, L. (2022) "Partitioning Marginal Epistasis Distinguishes Nonlinear Effects from Polygenicity and Other Biases in GWA Summary Statistics." *bioRxiv.*

Schulker, D., Harrington, L. M., Walsh, M., Evans, S. K., Cabreros, I., **Udwin, D.**, Lawrence, A., Maerzluft, C. E., Setodji, C. M. (2021) "Developing an Air Force Retention Early Warning System: Concept and Initial Prototype." Santa Monica, CA: RAND Corporation, 2021. *RAND.*

Ish-Horowicz*, J., **Udwin*, D.**, Kolbeinsson, A., Scharfstein, K., Flaxman, S., Crawford[†], L., Filippi[†], S. (2019) "A Group Variable Importance Framework for Bayesian Neural Networks." *arXiv.*
∗Authors contributed equally; [†]Authors contributed equally

Baumer, B., **Udwin, D.** (2015) "R Markdown." *WIREs: Computational Statistics.*

Stoudt, S., Cao, Y., **Udwin, D.**, Horton, N.J. (2014) "What Percent of the Continental US is Within One Mile of a Road?" *STatistics Education Web.*

LEADERSHIP AND COMMUNITY INVOLVEMENT

Student Ambassador, Brown University, School of Public Health, 2021 - 2022
Diversity and Inclusion Committee Member, Brown University, Department of Biostatistics, 2019 - 2022
Social Committee Member, Brown University, Department of Biostatistics, 2019 - 2022
Grant Coordinator, MassMutual Financial Group, LGBTQ Business Resource Group, 2015 - 2017
Consultant, Five College DataFest, 2015 - 2017 (Annual)
Tour Guide, Smith College, 2013 - 2014

PROFESSIONAL DEVELOPMENT

Sheridan Teaching Seminar (Certificate I), Brown University, 2020
Best in Show, Five College Datafest, 2014
Honorable Mention, Undergraduate Statistics Class Project Competition, 2014
Elected Sigma Xi, Smith College, 2013
Successful Participant, Mathematical Contest in Modeling, 2013