

Patrick Nicholson

Breaking down problems no one can solve
into problems anyone can

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Professional experience

Staff Data Scientist, Education Dec 2021 - Present	Chan Zuckerberg Initiative, Redwood City, CA Using data and rigorous engineering practices to help teachers meet students' needs. <ul style="list-style-type: none">• Teacher-in-the-loop scheduling tools that turn generic curricula into course and lesson plans that meet teachers' requirements and learning objectives• Proposed and prototyped different tools for expert-driven recommendations in the absence of reliable behavioral data
Principal Data Scientist Jun 2019 - Nov 2021	Vericast (formerly Valassis, MaxPoint), Morrisville, NC I worked from the highest level (executive leadership) to the lowest (production code) to identify customer problems and lead the development of new products. <ul style="list-style-type: none">• Print advertising delivery optimization that increases expected company profitability by 10 percent of revenue• Identity and cross-device resolution of 400+ million stable cookie and mobile users and billions of transient users• Automated ML framework used to train and score hundreds of models per day on 1+ billion instances using thousands of features• Linking 200+ million anonymous households to mailing addresses using 30+ billion daily location points• Indoor positioning system using cell phone sensor readings, enabling an entirely new line of business for the company• Proposed and developed new measurement products to expand measurement service to all client verticals• Scaled measurement platform from hundreds of stores to millions of users while adding new features
Senior Staff Data Scientist Aug 2017 - Jun 2019	
Staff Data Scientist Nov 2016 - Jul 2017	
Senior Marketing Data Scientist Aug 2016 - Nov 2016	
Statistical Analyst Jul 2015 - Jul 2016	
Senior Consultant Aug 2014 - Aug 2015	ASR Analytics, Potomac, MD Data science in consulting form. I worked in various functions including statistician, data engineer, software developer, economist, and technical writer. <ul style="list-style-type: none">• ML pipeline for tax fraud detection that increased fraud recovery by more than five times. The project's success was touted by our client at industry conferences and in press.• Econometric/statistical analysis on the firm's largest deliverable, including a 45 case studies, two intermediate summaries, and a final report
Consultant Dec 2011 - Jul 2014	

Education

Master of Arts in Economics	The University of Montana, Missoula, MT, May 2011 <ul style="list-style-type: none">• Only student in program history to finish in two semesters
BBA in Economics and Finance	James Madison University, Harrisonburg, VA, Dec 2009 <ul style="list-style-type: none">• Member of the Madison Investment Fund's portfolio analytics team

Skills and tools used in production

- Languages: (expert) Python, Scala, SQL; (advanced) R, Kotlin; (familiar), Java
- Data stack: (expert) Spark, PySpark, GraphX, Pandas, NumPy, HDFS, Hadoop, Postgres; (advanced) Snowflake; (familiar) Dask, Airflow, Prefect
- ML stack: (expert) SparkML, scikit-learn, SciPy
- Domains: (expert) machine learning, ML, statistics, statistical modeling, econometrics; (advanced) Bayesian statistics, artificial intelligence, AI, optimization, automated planning, AI planning
- Techniques: (expert) generalized linear models, linear regression, logistic regression, hierarchical models, tree models, decision trees, ensemble models, boosting, boosted trees, GBM, XGBoost, random forest, stacking, computational statistics