

Nicholas Spyrison

Visualization, Analysis, & Machine Learning

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Summary

I am a published data scientist with more than 5 years of clean, analyzing, and visualizing semi-structured data. I have a passion for using data visualization to lead analysis, and abstract away the mental work allowing the audience to focus on the evidence on hand.

Employment History

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|-------------------|---|---------------|
| 06/2022 – now | Research Data Scientist , <i>University of Queensland</i> ,
○ <i>R, python, Git</i>
○ Ad-hoc analysis and visualization of global COVID19 health record data, we published on kidney health outcomes stratified by social-economic status
○ Exploration, Multiple imputation, sparse and dense machine learning modeling, and hyperparameter tuning on relational database of COVID19 health record | Clayton, VIC. |
| 07/2018 – 06/2022 | Data Fluency Instructor , <i>Monash University</i> ,
○ <i>R, python, Git, PowerBI, Rest API</i>
○ <i>Data Fluency Instructor</i> : Lead workshops (10-30p) on R, modeling, PowerBI, & Git
○ <i>Teaching Assistant</i> : Postgraduate data exploration & visualization business & economic statistics.
○ <i>Research Officer</i> : census & text data; wrangling, analysis, & reporting | Clayton, VIC. |
| 12/2016 – 1/2018 | Business Intelligence Developer , <i>CPI Card Group</i> ,
○ <i>SQL, SSRS, Crystal, Oracle BICS (cloud), Excel</i>
○ Database reporting; across 4 reporting platforms and 4 database instances
○ Developed supply chain report tracking a cost reduction of more than \$4M USD | Denver, CO. |
| 07/2015 – 10/2016 | Business Intelligence Developer , <i>UDR Real Estate Investment Trust</i> ,
○ <i>SQL, SSRS, agile, SSAS/OLAP/MOLAP, WebFOCUS</i>
○ Responsible for transitioning reports from WebFOCUS to SSRS
○ On-call for enterprise-wide ETL process | Denver, CO. |
| 11/2014 – 04/2015 | Business Intelligence Analyst , <i>Heartland Financial USA</i> ,
○ <i>SQL, WebFOCUS</i> financial reporting | Dubuque, IA. |
| 02/2013 – 05/2014 | Delivery Analyst , <i>IBM – International Business Machines</i> ,
○ <i>R, Excel, VBA</i> reporting to teams and management
○ Step-wise model selection with dozens of variables
○ ETL scripting via VBA macros for about 0.5 FTE savings across the team
○ IBM's lean/six sigma green belt, root cause analysis (RCA) | Dubuque, IA. |
| 01/2010 – 08/2012 | Laboratory Technician , <i>The Ames Laboratory & Iowa State University</i> ,
Superconductivity & Magnetism Low-temperature Laboratory.
○ Conduct cryogenic material characterization, analysis, and publication | Ames, IA, |

Authored Software (R Packages)

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| 09/2022 | cheem – Novel analysis and interactive visual for exploring ML interpretability | Link |
| 10/2020 | spinifex – ggplot2-like API for composing & exporting animated projections | Link |

Education

- 02/2018 – 06/2022 **Ph.D. Information Technology & Statistics, Monash University,** Clayton, VIC,
Dimension reduction, interactive and animated data visualization, machine learning
Thesis: *Interactive and Dynamic Visualization of High-dimensional Data*.
- **Fit random forest models on several contemporary datasets** also shown to generalize to other models with **SVM and XGboost**.
 - Utilized **SHAP and LIME local explanations** to explore local linear variable importance to understand large residuals in the models
 - Created **novel animated and interactive visuals** facilitating this exploration in a shiny app
 - **Authored an R package** hosted on CRAN to facilitate understanding and adoption
- 08/2008 – 05/2012 **B.Sc. Statistics, Iowa State University,** minors in Physics and Mathematics, Ames, IA.

Skills

Specialization	Data visualization, dimension reduction, machine learning, interpretability
Programs	R, SQL, Python, Git, GitHub, Excel, VBA
Packages	ggplot2, tidyverse, plotly, shiny, tidymodels, caret, keras, pandas, scikit-learn
Models	Random forest, xgboost, neural networks, SVM, logistic regression, parameter tuning
Reporting	SSRS, Tableau, PowerBI, Rmarkdown, Shiny

Awards and Honors

06/2022	Invited article for INFORM's OR/MS Tomorrow	Link
04/2022	RStudio: March "Top 40" New CRAN Packages	Link
05/2022	Monash Postgraduate Publication Award	
10/2020	Melbourne Datathon 2020 – 1st place of several hundred entries	Link
	◦ <i>Changes to Victorian Intraday Electricity Demand Following COVID-19 Restrictions</i>	
11/2018	ACEMS Impact and Engagement Award	
07/2018	UseR2018 Datathon – 3rd place	
	◦ Spatio temporal animated visualization of over 7 million avian sightings	
2018 – 2022	Faculty Graduate Research Scholarship	
2018 – 2022	Co-funded Monash Graduate Scholarship	
05/2012	Nominated for Student Employee of the Year	
05/2011	Nominated for Student Employee of the Year	
05/2008	American Legion Award	

References and publications available on request.