Nicholas Spyrison

Objective

A position at a forward-thinking company that utilizes and presses my skills: advanced data visualization, machine learning models, dimension reduction, and communicating insight from multidimensional data.

Skills

Focus	Data vis, dimension reduction, feature engineering, machine learning & interpretability
Programs	R, Python, PowerBI, Excel & VBA, LaTeX
Models	xgboost, neural networks, random forest, SVM, linear, K-NN, K-means, parameter tuning
Tools +	Git & GitHub, JSON, REST, docker, agile
Databases	T-SQL, ORACLE, OLAP/MOLAP, MongoDB
Reporting	Rmarkdown, Shiny, SSRS, PowerBI, WebFOCUS, Cyrstal

Software (R Packages)

spinifex	Facilitates the manual tour. Provides an interface for composing animated and interactive linear projections to various formats. Link
cheem	Given a nonlinear model, find the local explanation of each observation. Provides an interactive coordinated views in a **shiny** application. Novel analysis and visuals to explore the local explanations with the manual tour. This general analysis is demonstrated on SHAP values from random forest models. Link

Education

Degree	**Ph.D., Information Technology/Stats**	**Feb 2018 — Pres.** *(under examination)*
University	**Monash University**	Melbourne, Australia
Focus	Dimension reduction, interactive and dynamic data visualization, machine learning models and interpretability	
Thesis	*Interactive and dynamic visualization of high-dimensional data*	Link

Degree	**B.Sc, Statistics**, Physics & Mathematics minors	**Aug 2008 — May 2012**
University	**Iowa State University**	Ames, Iowa

Work Experience

Job Title	**Various seasonal employment**	**2018 — Pres.**, *part time during edu*
Employer	**Monash University**	Melbourne, Australia
Programs	**R, Git, PowerBI, API**	

Data fluency instructor: taught various workshops on R, modeling, programming, PowerBI, and Git & GitHub, *Teaching assistant*: data exploration and visualization & business and economic statistics, *Research officer*: criminology & human geology data cleaning, analysis, summarization & reporting.

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Job Title	**Business Intelligence Developer**	**2016 — 2018**
Employer	**CPI Card Group**	Denver, CO
Programs	**T-SQL, SSRS, Crystal, Oracle BICS, Excel**	

Develop mid- and high-abstraction database queries. Database reporting; across 4 reporting platforms. Developed supply chain report enabling a cost reduction of more than $4M USD within one plant.

Job Title	**Business Intelligence Developer**	**2015 — 2016**
Employer	**UDR Real Estate Investment Trust**	Denver, CO
Programs	**T-SQL, SSRS, OLAP/MOLAP, WebFOCUS**	

Query, analysis, & reporting. Organized and conducted transition from WebFOCUS reporting to SSRS. On-call for enterprise-wide ETL process.

Job Title	**Business Intelligence Analyst**	**2014 — 2015**
Employer	**Heartland Financial USA**	Dubuque, IA
Programs	**T-SQL, WebFOCUS**	

Database querying, data analysis and enterprise reporting.

Job Title	**Delivery Data Analyst**	**2013 — 2014**
Employer	**IBM — International Business Machines**	Dubuque, IA
Programs	**R, Excel, VBA**	

Statistical variance analysis & metric reporting to teams and management. IBM's lean/six sigma methodology, root cause analysis, ETL scripting via VBA macros for about 0.5 FTE savings across the team. Step-wise model selection with dozens of variables, predicting ticket time.

Job Title	**Various seasonal employment**	**2010 — 2012**, *part time during edu*
Employer	**Iowa State University & Ames Laboratory**	Ames, IA

User Interface Developer: Custom R application *Laboratory Technician*: Superconductivity data measurement and analysis, *Physics Tutor*: Classical Physics (201) to groups of 5 students.

Honors and awards

Melbourne Datathon 2020, Insights category — 1st place **2020**
to Victorian Intraday Electricity Demand Following COVID-19 Restrictions, 1st place of a couple hundred entries. Link

ACEMS Impact and Engagement Award **2018**
Creation and sharing of R package **spinifex** and contributions to **tourr**.

UseR2018 Datathon — 3rd place **2018**
Animated temporal-geospatial visualization of over 7 million observations of avian sightings, 3rd of 5 teams.

Nominated for Student Employee of the Year **2011 & 2012**
Reliability, quality of work, initiative, professionalism, and uniqueness of contribution to Iowa State University.

American Legion award **2008**
Demonstration of the qualities: courage, honor, leadership, patriotism, scholarship, and service.

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Membership & engagement

Australian Centre of Excellence for Mathematical and Statistical Frontiers (ACEMS)
Statistical Society of Australia (SSA), Victorian branch
American Statistical Association, district 4

Doctoral thesis

[1] Nicholas S Spyrison. "Interactive and dynamic visualization of high-dimensional data". en. PhD thesis. Monash University, Mar. 2022. URL: https://github.com/nspyrison/thesis_ns/blob/master/docs/thesis_ns.pdf.

Journal articles

[2] Nicholas Spyrison and Dianne Cook. "spinifex: an R Package for Creating a Manual Tour of Low-dimensional Projections of Multivariate Data". en. In: *The R Journal* 12.1 (2020), p. 243. ISSN: 2073-4859. DOI: 10.32614/RJ-2020-027. URL: https://journal.r-project.org/archive/2020/RJ-2020-027/index.html (visited on 10/16/2020).

[3] Stuart Lee et al. "The state-of-the-art on tours for dynamic visualization of high-dimensional data". en. In: *WIREs Computational Statistics* (Dec. 2021), p. 21. ISSN: 1939-0068. DOI: 10.1002/wics.1573. URL: https://onlinelibrary.wiley.com/doi/pdf/10.1002/wics.1573 (visited on 12/10/2021).

Software (R packages)

[4] Nicholas Spyrison and Dianne Cook. *spinifex: Manual Tours, Manual Control of Dynamic Projections of Numeric Multivariate Data*. 2021. URL: https://CRAN.R-project.org/package=spinifex.

[5] Nicholas Spyrison. *cheem: Interactively Explore the Support of Local Explanations of a Model*. 2022. URL: https://CRAN.R-project.org/package=cheem.

Conference proceedings

[6] Nicholas S. Spyrison. "spinifex: visualizing local structure of higher dimensions". en. In: Brisbane, Australia, 2018. URL: https://user2018.r-project.org/poster/ (visited on 07/28/2020).

[7] Madeleine Barrow, Jieyang Chong, and Nicholas Spyrison. "Changes to Victorian Intraday Electricity Demand Following COVID-19 Restrictions". en. In: *Melbourne Datathon 2020, Insights category*. Oct. 2020, p. 4. URL: https://github.com/nspyrison/melb_datathon2020/blob/master/_paper/paper.pdf (visited on 02/09/2022).

[8] Nicholas Spyrison, Benjamin Lee, and Lonni Besançon. ""Is IEEE VIS *that* good?" On key factors in the initial assessment of manuscript and venue quality". In: *IEEE AltVis Workshop*. type: article. July 2021. DOI: 10.31219/osf.io/65wm7. URL: https://osf.io/65wm7/ (visited on 08/21/2021).

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