

Nicholas S Spyrison

curriculum vitae



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Education

Ph.D. Information Technology, 2018 – Q1 2022 (*expected*)
Monash University, Clayton, VIC. Australia,
Dynamic multivariate data visualization.

B.Sc. Statistics, 2008 – 2012
Iowa State University, Ames, IA. USA,
Minors: physics and mathematics.

Doctoral thesis

Title: *Dynamic visualization of high-dimensional data with low-dimensional projections, their efficacy in variable attribution tasks, and their application to model-agnostic local explanations*

Supervisors:

Professor Kimbal Marriott, research.monash.edu,
Department of Human-Centred Computing
Professor Dianne Cook, dicook.org,
Department of Econometrics and Business Statistics

Experience

Varied casual/seasonal employment, 2018 – 2021
Monash University.

- Data fluency associate instructor: especially R, data visualization, and Git
- Teaching assistant: data exploration and visualization
- Research officer: human geology (Melbourne and Sydney Census data wrangling)
- Teaching assistant: business and economic statistics
- Research officer: criminology, community engagement data wrangling, and reporting
- Teaching assistant, business and economic statistics

Business Intelligence Developer, 2016 – 2018
CPI Card Group.

- Develop mid- and high-abstraction *T-SQL* queries
- Database reporting; across 4 reporting platforms (SSRS, Crystal, Oracle BICS, Excel) and 4 database instances
- Developed supply chain report tracking and feeding a cost reduction of more than \$4M USD within one plant

Business Intelligence Developer, 2015 – 2016
UDR Real Estate Investment Trust.

- Develop high abstraction level *T-SQL* development
- Database reporting; *SSRS*
- On-call for enterprise-wide ETL process

Business Intelligence Analyst, 2014 – 2015
Heartland Financial USA.

- Database reporting

Delivery Analyst, **2013 – 2014**
IBM – International Business Machines.

- IBM's lean/six sigma green belt, root cause analysis (RCA)
- ETL scripting via VBA macros for greater than 1 FTE savings across the team
- Step-wise model selection with dozens of variables

User Interface Developer, **2012 – 2012**
Iowa State University; Department of Statistics.

Laboratory Technician, **2010 – 2012**
*The Ames Laboratory & Iowa State University;
 Department of Physics & Astronomy.*

Superconductivity & Magnetism Low-temperature Laboratory, physics.iastate.edu/

Physics Tutor, **2010 – 2012**
Iowa State University.

Software

R stats: Advanced; package author, academic publications, shiny applications, and blogdown websites

T-SQL: Intermediate, medium to high abstraction, *Esp.* 2012, 2016, SSMS, SSRS

Excel: advanced; macros, VBA, complex analysis and reporting

LaTeX: Intermediate; especially for journal articles, and *Esp.* indirectly through the markup language, rmarkdown

Awards and honors

Melbourne Datathon 2020, Insights category – 1st place, **2020**
Changes to Victorian Intraday Electricity Demand Following COVID-19 Restrictions, 1st place of several hundred entries. [Project repository](#) .

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

UseR2018 Datathon – 3rd place, **2018**
Consumption, modeling, and visualization of over 7 million observations of avian sightings, 3rd of 5.

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.

Community engagement

Australian Centre of Excellence for Mathematical and Statistical Frontiers (ACEMS)

Statistical Society of Australia (SSA), Victorian branch

American Statistical Association, district 4

Melbourne Users of R Network (MelbURN)

R-Ladies Melbourne

Denver R User Group

Denver SQL Server User Group

Not so standard deviations (R podcast)

The R-podcast

Journal articles

- [2] S. Lee, D. Cook, N. da Silva, U. Laa, N. Spyrisson, E. Wang, and H. S. Zhang, "The state-of-the-art on tours for dynamic visualization of high-dimensional data," en, *WIREs Computational Statistics*, p. 21, Dec. 2021, _eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/wics.1573>, ISSN: 1939-0068. DOI: 10.1002/wics.1573. [Online]. Available: <https://onlinelibrary.wiley.com/doi/abs/10.1002/wics.1573> (visited on 12/10/2021).
- [6] N. Spyrisson and D. Cook, "Spinifex: An R Package for Creating a Manual Tour of Low-dimensional Projections of Multivariate Data," en, *The R Journal*, vol. 12, no. 1, p. 243, 2020, ISSN: 2073-4859. DOI: 10.32614/RJ-2020-027. [Online]. Available: <https://journal.r-project.org/archive/2020/RJ-2020-027/index.html> (visited on 10/16/2020).
- [8] H. Kim, M. A. Tanatar, W. E. Straszheim, K. Cho, J. Murphy, N. Spyrisson, J.-P. Reid, B. Shen, H.-H. Wen, and R. M. Fernandes, "Competition between superconductivity and magnetic/nematic order as a source of anisotropic superconducting gap in underdoped $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$," *Physical Review B*, vol. 90, no. 1, p. 014517, 2014, Publisher: APS.
- [9] M. A. Tanatar, W. E. Straszheim, H. Kim, J. Murphy, N. Spyrisson, E. C. Blomberg, K. Cho, J.-P. Reid, B. Shen, and L. Taillefer, "Interplane resistivity of underdoped single crystals $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$ ($0 < x < 0.34$)," *Physical Review B*, vol. 89, no. 14, p. 144514, 2014, Publisher: APS.
- [10] K. Cho, M. A. Tanatar, N. Spyrisson, H. Kim, Y. Song, P. Dai, C. L. Zhang, and R. Prozorov, "Doping-dependent anisotropic superconducting gap in $\text{Na}_{1-x}\text{Fe}_x\text{CoAs}$ from London penetration depth," *Physical Review B*, vol. 86, no. 2, p. 020508, 2012, Publisher: APS.
- [11] G. E. Rustan, N. Spyrisson, A. Kreyssig, R. Prozorov, and A. I. Goldman, "Noncontact technique for measuring the electrical resistivity and magnetic susceptibility of electrostatically levitated materials," *Review of Scientific Instruments*, vol. 83, no. 10, p. 103907, 2012, Publisher: American Institute of Physics.
- [13] N. Spyrisson, M. A. Tanatar, K. Cho, Y. Song, P. Dai, C. Zhang, and R. Prozorov, "Environmental stability and anisotropic resistivity of Co-doped $\text{Na}_{1-x}\text{Fe}_x\text{CoAs}$," *Physical Review B*, vol. 86, no. 14, p. 144528, 2012, Publisher: APS.
- [15] M. A. Tanatar, N. Spyrisson, K. Cho, E. C. Blomberg, G. Tan, P. Dai, C. Zhang, and R. Prozorov, "Evolution of normal and superconducting properties of single crystals of $\text{Na}_{1-x}\text{Fe}_x\text{As}$ upon interaction with environment," *Physical Review B*, vol. 85, no. 1, p. 014510, 2012, Publisher: APS.

Software (R packages)

- [1] N. Spyrisson, *Cheem: Interactively Explore the Support of Local Explanations of a Model*, 2022. [Online]. Available: <https://github.com/nspyrisson/cheem/>.
- [3] N. Spyrisson and D. Cook, *Spinifex: Manual Tours, Manual Control of Dynamic Projections of Numeric Multivariate Data*, 2021. [Online]. Available: <https://github.com/nspyrisson/spinifex/>.

Conference proceedings

- [4] N. Spyrisson, B. Lee, and L. Besançon, "'Is IEEE VIS *that* good?' On key factors in the initial assessment of manuscript and venue quality," in *IEEE AltVis Workshop*, type: article, Jul. 2021. DOI: 10.31219/osf.io/65wm7. [Online]. Available: <https://osf.io/65wm7/> (visited on 08/21/2021).
- [5] M. Barrow, J. Chong, and N. Spyrisson, "Changes to Victorian Intraday Electricity Demand Following COVID-19 Restrictions," en, in *Melbourne Datathon 2020, Insights category*, Oct. 2020, p. 4. [Online]. Available: https://github.com/nspyrisson/melb_datathon2020/blob/master/_paper/paper.pdf (visited on 02/09/2022).
- [7] N. S. Spyrisson, "Spinifex: Visualizing local structure of higher dimensions," en, Brisbane, Australia, 2018. [Online]. Available: <https://user2018.r-project.org/poster/> (visited on 07/28/2020).
- [12] N. Spyrisson, M. A. Tanatar, K. Cho, E. Blomberg, G. Tan, J. Yan, P. Dai, C. Zhang, and R. Prozorov, "Oxidative deintercalation of single crystal $\text{Na}_{1-x}\text{FeAs}$ upon Interaction with the environment," Publisher: APS, Boston, Massachusetts: Bulletin of the American Physical Society, 2012.

- [14] M. A. Tanatar, N. Spyrisson, K. Cho, G. T. Tan, J. Q. Yan, P. C. Dai, C. L. Zhang, and R. Prozorov, "Temperature-dependent resistivity in single crystals $\text{Na}_{1-x}\text{Fe}_x\text{Co}$," Publisher: APS, Boston, Massachusetts: Bulletin of the American Physical Society, 2012.
- [16] N. Spyrisson, P. Prommapan, H. Kim, J. Maloney, G. E. Rustan, A. Kreyssig, A. I. Goldman, and R. Prozorov, "Development of a Tunnel Diode Resonator technique for magnetic measurements in Electrostatic Levitation chamber," Dallas, Texas: Bulletin of the American Physical Society, 2011, Q21-014.