Nicholas S Spyrison

curriculum vitae

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Education

Ph.D. Information Technology, **2018 – *Dec 2021 (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/sessional 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.

Membership, user groups, volunteering

CHI Down Under May 2020, online conference, Student Volunteer
UseR! July 2018, conference - Brisbane, Australia., Student Volunteer
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

[1] S. Lee, D. Cook, N. Da Silva, U. Laa, E. Wang, N. Spyrison, and H. S. Zhang, "A Review of the State-of-the-Art on Tours for Dynamic Visualization of High-dimensional Data," *arXiv preprint arXiv:2104.08016*, 2021.

[4] N. Spyrison, B. Lee, and L. Besançon, """ Is IEEE VIS* that* good?" On key factors in the initial assessment of manuscript and venue quality," 2021, Publisher: OSF Preprints.

[5] N. Spyrison and Cook, Dianne, "Spinifex: An r package for creating a manual tour of low-dimensional projections of multivariate data," *The R Journal*, vol. 12, no. 1, (accepted), 2020.

[6] H. Kim, M. A. Tanatar, W. E. Straszheim, K. Cho, J. Murphy, N. Spyrison, 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 $ba1-xk_xfe_2as_2$," *Physical Review B*, vol. 90, no. 1, p. 014 517, 2014, Publisher: APS.

[7] M. A. Tanatar, W. E. Straszheim, H. Kim, J. Murphy, N. Spyrison, E. C. Blomberg, K. Cho, J.-P. Reid, B. Shen, and L. Taillefer, "Interplane resistivity of underdoped single crystals $ba1-xkxfe_2as_2(0x0.34)$," *Physical Review B*, vol. 89, no. 14, p. 144 514, 2014, Publisher: APS.

[9] K. Cho, M. A. Tanatar, N. Spyrison, H. Kim, Y. Song, P. Dai, C. L. Zhang, and R. Prozorov, "Doping-dependent anisotropic superconducting gap in $na1-\delta fe1-xco_xas$ from london penetration depth," *Physical Review B*, vol. 86, no. 2, p. 020 508, 2012, Publisher: APS.

[10] G. E. Rustan, N. Spyrison, 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. 103 907, 2012, Publisher: American Institute of Physics.

[12] N. Spyrison, M. A. Tanatar, K. Cho, Y. Song, P. Dai, C. Zhang, and R. Prozorov, "Environmental stability and anisotropic resistivity of co-doped $na1-fe1-xco_xas$," *Physical Review B*, vol. 86, no. 14, p. 144 528, 2012, Publisher: APS.

[14] M. A. Tanatar, N. Spyrison, K. Cho, E. C. Blomberg, G. Tan, P. Dai, C. Zhang, and R. Prozorov, "Evolution of normal and superconducting properties of single crystals of $na1\check{}feas$ upon interaction with environment," *Physical Review B*, vol. 85, no. 1, p. 014 510, 2012, Publisher: APS.

[16] N. Spyrison, P. Prommapan, H. Kim, J. Maloney, G. Rustan, A. Kreyssig, A. Goldman, and R. Prozorov, "Development of a tunnel diode resonator technique for magnetic measurements in electrostatic levitation chamber," Mar. 1, 2011.

Software (R packages)

[2] N. Spyrison, *Cheem: Interactively interrogate local explanations of a model with radial tours*, version 0.1.9000, 2021. [Online]. Available: `https://github.com/nspyrison/cheem/`.

[3] N. Spyrison and D. Cook, *Spinifex: Manual tours, manual control of dynamic projections of numeric multivariate data*, version 0.3.1, 2021. [Online]. Available: `https://CRAN.R-project.org/package=spinifex`.

Conference presentations

[8] K. Cho, M. A. Tanatar, N. Spyrison, H. Kim, R. Prozorov, G. Tan, J. Yan, P. Dai, and C. Zhang, "Doping-dependent anisotropic superconducting gap in $na1{-}feas$ and $nafe1-xco_xas$ pnictides," presented at the APS March Meeting 2012, Publisher: APS, Boston, Massachusetts: Bulletin of the American Physical Society, 2012.

[11] N. Spyrison, M. A. Tanatar, K. Cho, E. Blomberg, G. Tan, J. Yan, P. Dai, C. Zhang, and R. Prozorov, "Oxidative deintercalation of single crystal $na1{-}feas$ upon interaction with the environment," presented at the APS March Meeting 2012, Publisher: APS, Boston, Massachusetts: Bulletin of the American Physical Society, 2012.

[13] M. A. Tanatar, N. Spyrison, K. Cho, G. T. Tan, J. Q. Yan, P. C. Dai, C. L. Zhang, and R. Prozorov, "Temperature-dependent resistivity in single crystals $na1{-}feas$ and $nafe1-xco_x$," presented at the APS March Meeting 2012, Publisher: APS, Boston, Massachusetts: Bulletin of the American Physical Society, 2012.

[15] N. Spyrison, 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," presented at the APS March Meeting 2011, Dallas, Texas: Bulletin of the American Physical Society, 2011.