

# Nicholas Spyrison

Curriculum Vitae  
March 2020

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## Education

2018–2021 *Ph.D. Information Technology* Monash University, Clayton, VIC, AUS  
Thesis: New Tools for User-guided Exploration of Linear Projections  
2008–2012 *B.Sc. Statistics* Iowa State University, Ames, IA, USA  
Minors: physics and mathematics

## Employment

2020–2020 Teaching assistant, data exploration and visualization – Monash University  
2018–2018 Research officer, Human geology – Monash University  
2019–2019 Teaching assistant, business and economic statistics – Monash University  
2018–2019 Research officer, Criminology – Monash University  
2016–2018 **Business Intelligence Developer** – CPI Card Group Inc.  
*T-SQL - 2012 (SSMS, SSRS), R language, GitHub, Crystal Reports, Oracle BICS, Excel*

- Supply chain reporting leading to more than \$4 M USD cost reduction
- T-SQL development – mid-high level abstraction
- 4 reporting tools across multiple database instances

2015–2016 **Business Intelligence Developer** – United Dominion Realty Trust Inc. (UDR)  
*T-SQL - 2012 & 2016 (SSMS, SSRS, SSAS - MOLAP Cube), PowerBI, WebFOCUS – 8.0+, Excel*

- T-SQL development – high level abstraction
- 3 reporting tools across several database instances
- On-call for enterprise-wide nightly data process

2014–2015 **Business Intelligence Analyst** – Heartland Financial USA Inc.  
*WebFOCUS – 8.0+, Excel*

- T-SQL development – high level abstraction

2014–2014 **Laboratory Technician** – The Ames Laboratory & Iowa State University  
*CAD Inventor, LabVIEW, Excel*

2013–2014 **Delivery Analyst** – International Business Machines Corporation (IBM)  
*Excel, VBA, R language*

- Weekly metric/KPI presentations to lower and mid management
- IBM's process improvement methodology, root cause analysis, process behavior analysis
- Weekly metric/KPI presentations to lower and mid management
- Automated cleaning and metric creation in VBA for greater than 1 FTE savings across the team

2012–2012 **User Interface Developer** – Iowa State University  
*R language, GitHub, Linux Shell*

2010–2012 **Laboratory Technician** – The Ames Laboratory & Iowa State University  
*CAD Inventor, LabVIEW, LaTeX, Excel*

2009–2009 **Physics Tutor** – Iowa State University

- Classical physics I & II with calculus

## Honors and awards

2018 ACEMS Impact and Engagement Award, for development of the R package spinifex  
2018 UseR 2018! Datathon, 3rd place, of 5 teams, for a temporal-spatial shiny dashboard of avian sightings in Australia  
2008 American Legion award

## Research summary

- Visualization of multivariate spaces
  - Between 2018 and 2021 (expected) I researched high dimensional visualization especially through animates across changing bases with various visualization tours
  - 1 Accepted publication, 1 R package publication
  - Another 3 publications in the pipeline

➤ Superconductors, condensed matter physics

- Between 2009 and 2014 researched pnictide superconductors (iron-based, type II superconductivity)
- 6 publications across various compositions and dopings
- Drafting and fabrication of fabricated tunnel-diode resonators with 0.01ppm sensitivity for contactless resistivity measurements
- Cryogenic application up to and including vacuum turbo-pumped, He3 systems

## Membership

- 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)
- Denver R User Group
- Server SQL Server User Group
- R-Ladies Melbourne
- Not so standard deviations (R podcast)
- The R-podcast
- Credibly Curious(R podcast)

## Publications

### Visualization of multivariate spaces

biotype Software not implemented

[2] N. Spyrisson and Dianne Cook. "spinifex: An R Package for Creating a Manual Tour of Low-dimensional Projections of Multivariate Data". In: *The R Journal* 12.1 (2020), p. (accepted).

### Superconductors, condensed matter physics

- [1] K. Cho, M. A. Tanatar, N. Spyrisson, et al. "Doping-dependent anisotropic superconducting gap in  $\text{Na}_{1-x}\text{Fe}_x\text{As}$  from London penetration depth". In: *Physical Review B* 86.2 (2012). Publisher: APS, p. 020508.
- [2] H. Kim, M. A. Tanatar, W. E. Straszheim, et al. "Competition between superconductivity and magnetic/nematic order as a source of anisotropic superconducting gap in underdoped  $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$ ". In: *Physical Review B* 90.1 (2014). Publisher: APS, p. 014517.
- [3] G. E. Rustan, N. S. Spyrisson, A. Kreyssig, et al. "Noncontact technique for measuring the electrical resistivity and magnetic susceptibility of electrostatically levitated materials". In: *Review of Scientific Instruments* 83.10 (2012). Publisher: American Institute of Physics, p. 103907.
- [4] N. Spyrisson, M. A. Tanatar, K. Cho, et al. "Environmental stability and anisotropic resistivity of Co-doped  $\text{Na}_{1-x}\text{Fe}_x\text{As}$ ". In: *Physical Review B* 86.14 (2012). Publisher: APS, p. 144528.
- [5] M. A. Tanatar, N. Spyrisson, K. Cho, et al. "Evolution of normal and superconducting properties of single crystals of  $\text{Na}_{1-x}\text{Fe}_x\text{As}$  upon interaction with environment". In: *Physical Review B* 85.1 (2012). Publisher: APS, p. 014510.
- [6] M. A. Tanatar, W. E. Straszheim, H. Kim, et al. "Interplane resistivity of underdoped single crystals ( $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$  ( $0 \leq x \leq 0.34$ )). In: *Physical Review B* 89.14 (2014). Publisher: APS, p. 144514.