## **CURRICULUM VITAE**

(scientific version<sup>1</sup>)

Name Nicholas Irving FISHER
Place of Birth Melbourne, Australia

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## 1. EDUCATION

## 1.1 University

1994 University of Sydney, D.Sc.

Contributions to the Statistical Analysis of Directional Data

1972–75 University of North Carolina, Ph.D. (1975)

Dissertation: The theory of unbiased estimation for some nonparametric families of probability measures, under direction of W. Hoeffding

1968–69 University of Sydney, M.Sc. (1970) 1964–67 University of Sydney, B.Sc. (1968)

2nd Class Division 1 Honours in Mathematical Statistics.

## 1.2 School

1962–63 Sydney Grammar School (Leaving Certificate 1963).

1959–61 Hunters Hill High School;

### 1.3 Other

2010 – present, PStat (Accredited Statistician, American Statistical Association)

2004 – 2007 Graduate, Australian Institute of Company Directors

1998 – present, AStat (Accredited Statistician, Statistical Society of Australia)

1997 Certificate IV in Quality Management

1992–3 CSIRO Leadership Development Program

## 2. HONOURS, AWARDS, FELLOWSHIPS

2025 Elected to Fellowship of the Royal Society of New South Wales (7 May 2025)

2023 W S Gosset Lecture Award, International Society for Business & Industrial Statistics

2019 Deming Lecture Award, American Statistical Association

Date of preparation: September 2025.

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<sup>&</sup>lt;sup>1</sup> Does not include full details of clients or projects associated with ValueMetrics Australia

#### (https://ww2.amstat.org/meetings/jsm/2019/webcasts/index.cfm) 2015 ISI Service Award 1998 Honorary Life Member, Statistical Society of Australia Inc. 1991 Elected Fellow of the American Statistical Association. 1987 Academic Visitor, Balliol College, Oxford 1987 Best Paper Award, Journal of Mathematical Geology, 1985 1986 Elected to Fellowship of International Statistical Institute 1981 ACTIM Scholarship (France) CSIRO Divisional Studentship 1972–75 1968–69 Commonwealth Post-graduate Scholarship 1964–67 Commonwealth Scholarship

## 3. EMPLOYMENT HISTORY

## 3.1 Current positions

- 2001 . Founder and Principal, ValueMetrics Australia, a consultancy that specialises in helping enterprises gain and sustain success through effective use of Performance Measurement.
- 2001 . Visiting Professor of Statistics, University of Sydney
- 2021 . Chief Data Scientist, Your Diamonds.com.

### 3.2 CSIRO

- 1969 2001 Chief Research Scientist, CSIRO Division of Mathematics & Statistics. (Experimental Officer 1, March 1969; Experimental Officer 2, July 1971; Research Scientist, July 1976; Senior Research Scientist, July 1979; Principal Research Scientist, July 1984; Senior Principal Research Scientist, July 1989; Chief Research Scientist 1997.)
- 1976 1993 Consultant at CSIRO Minerals Research Laboratories
- 1989 1997 Research Manager (Applied & Industrial Statistics Program), and Research Project Leader (Computer–Intensive Statistical Methods).

# 3.3 Other experience

- 2015 2018 Coordinator, Statistics and Big Data Project (UTS leader, UWS, UNSW, SU, UoW, QUT, ANU)
- 2012 2013 Visiting Professor of Statistics, University of Leiden
- Founding Director, Enterprise Measurement Group Pty Ltd.
- Core Participant, Invasive Animals Cooperative Research Centre, 2005–2012
- 1999 2001 External member, Advisory Board, School of Information Sciences, Newcastle University
- 1996 2007 Visiting Professor of Geology, National Key Centre for the Geochemical Evolution and Metallogeny of Continents (GEMOC), Macquarie University
- 1987 Visiting appointment at the University of Rochester, New York; Academic Visitor, Balliol College, Oxford. Honorary Visitor at Mathematical Institute and School of Earth Sciences, Oxford University.

- 1981, 1983, 1985 Visiting appointments at the Open University, UK.
- 1981 Visiting Research Associate at the Centre for Geostatistics & Mathematical Morphology, Paris School of Mines, Fontainebleau, France.
- 1978 Visiting Lecturer, Department of Mathematics, University of Auckland.
- 1970 72 Part–time Tutor, Department of Pure Mathematics, University of Sydney.
- 1970 Part–time Demonstrator, Department of Biometry, University of Sydney.

### 4. MEMBERSHIP OF PROFESSIONAL SOCIETIES

American Statistical Association (elected as a Fellow in 1991; Life Member since 2017)

International Association for Mathematical Geology (Life Member since 2008) International Statistical Institute (elected to membership in 1986)

Institute of Mathematical Statistics

Royal Statistical Society

Statistical Society of Australia Inc. (elected Hon. Life Member, 1998)

### 5. OTHER PROFESSIONAL EXPERIENCE

# 5.1 Planning, teaching and workshops

### Strategic Planning

- 2017–2020: Facilitated development of Strategic and Operational Plans and associated Planning Process for the 4 departments of the Mellon College of Science and for the MCS, Carnegie Mellon University; implementation of stakeholder value management programs to provide ongoing metrics for the Strategic Plans
- **2013**: Facilitated development of Strategic and Operational Plans and associated Planning Process, Department of Statistics, Purdue University
- **2008**: Facilitated development of Strategic and Operational Plans and associated Planning Process, Department of Statistics, Purdue University
- **2001–2007:** Facilitated development of Strategic and Operational Plans and associated Planning Process for
  - the Statistical Society of Australia
  - VvS&OR (Netherlands)
  - The International Statistical Institute
  - ISBIS (International Society for Business and Industrial Statistics)
  - IAMG (International Association for Mathematical Geology)
  - the American Statistical Association: participated in the Ad Hoc Strategic Planning Task Force, which employed my planning process

### Teaching and workshops

Apart from normal undergraduate and graduate lecturing loads associated with visiting appointments at the Universities of Auckland, Rochester and Oxford, I have given a number of short courses and numerous 1, 2 or 4-day workshops, including:

• Analytics for Leaders. Performance Measurement for Enterprises. 4-day

- Workshop (Part-time engineering PhD students CEOs and middle management), Hong Kong Polytechnic. February 2014.
- Analytics for Leaders. Performance Measurement for Enterprises. 4-day Workshop (Statistics PhD students), SEEM, Hong Kong. December 2013.
- Introduction to Performance Indicators. Half-day workshop to COAG (Council of Australian Governments) Reform Council, June 2010.
- Various workshops on Organisational Performance Measurement and Customer Value Analysis for the Market Research Society of Australia, University of Wollongong MBA program, Mount Eliza Business School and others.
- Several two–day workshops on *Quality Management* to CSIRO groups, and one to the American Statistical Association Office, 1994–1997, as the first part of a process to help the groups adopt a quality management approach to the way they operated.
- 20 one—day short courses on *Preparation of Graphs and Tables for Official Publications and Presentation Graphics*, commissioned by Australian Bureau of Statistics, 1990–1992.
- Lecture course on *Directional Data Analysis* at Department of Statistics, Australian National University, 1986.
- Short course on *Nonparametric Statistics*, Department of Mathematics, University of Western Australia, 1979.

### 5.2 Professional contributions

#### Professional societies

- Chair, Statistical Society of Australia History Standing Committee 2023 –
- Chair, Statistical Society of Australia Obituaries Commissioning Panel 2023 –
- Chair, Organising Committee, "Assessment of the Quality of Graduate Programs in Statistics and Biostatistics", ASA-sponsored Workshop, NISS, North Carolina, 9–11 November 2010.
- ASA Accreditation Committee, 2007 2014
- Chair, ASA Deming Lecturer Committee, 2007 2009
- ASA Strategic Planning Committee 2007–2008
- Chair, ISI Restructuring Committee, 2006–2007
- President, International Society for Business & Industrial Statistics, 2007–2009
- Vice-President, International Society for Business & Industrial Statistics, 2005–2007
- Vice-President, International Association for Mathematical Geology, 2004–2008
- Vice-President, International Statistical Institute (ISI), 2003–2007
- Council Member, Statistical Society of Australia Inc. 2004 –
- Council Member, International Statistical Institute, 2001–2005
- President, Statistical Society of Australia Inc. 2001-2003
- Member, ISI Committee on Industrial Statistics 1990 2005.
   Deputy Chair, 1996 1999, Chair 1999 2003.
- International Representative to the Board of Directors of the American Statistical Association, 1996–1998.
- Board of Directors, Interface Foundation of North America, 1994–98
- Bernoulli Society Committee for Statistics in the Physical Sciences 1990 1998; Chair 1990–1994.

- Statistical Society of Australia delegate to Australian Geoscience Council, 1983 – ?
- Council Member, Statistical Society of Australia, NSW Branch, 1978–80, 1989 95; Assistant Secretary, 1980, President (NSW Branch) 1992–3.
- Chair, Statistical Society of Australia, Section on Statistics in the Earth Sciences, 1982– 1990
- Secretary, Biometric Society (Australasian Region) 1978–79.

## Conferences and other meetings

- Director, Sardegna Summer School, 27 June 7 July 2011, Sardegna.
- Chair, Organising Committee, "Assessment of the Quality of Graduate Programs in Statistics and Biostatistics", ASA-sponsored Workshop, NISS, North Carolina, 9–11 November 2010.
- Director, *International Symposium on Business & Industrial Statistics* (ISBIS-2010), Portoroz, Slovenia, July 2010.
- Co-Chair, Satellite conference on Business and Industrial Statistics, Stellenbosch, RSA, 24–26 August, 2009
- Co-Chair, Scientific Program, 2009 International Conference on Business and Industrial Statistics, Sardegna, Italy, 29 May 3 June, 2009
- Co-Chair, Scientific Program Committee, 2008 International Conference on Applied Probability and Statistics (CAPS 2008) Hanoi, Vietnam. December 1–3, 2008
- Director, *International Symposium on Business & Industrial Statistics* (ISBIS-2008), Prague, Czech Republic, 1–4 July 2008.
- Director, 4th International Symposium on Business & Industrial Statistics (ISBIS-4), Palm Cove, Queensland, 13-16 April 2005.
- Vice-Chair, National Organising Committee, 55<sup>th</sup> Session of International Statistical Institute, Sydney, 5-12 April 2005.
- Chair, Bernoulli Society Program Committee, ISI Session, Seoul, Korea 2001.
- Organiser, One-day National Quality Management Conference, Sydney, April 1997.
- Director, Sydney International Statistical Congress (SISC-96), Sydney, July 8–12, 1996.
- Board of Directors, Interface Foundation of North America, 1994–98
- Director, *Chemometrics and Environmetrics Conference* (CHESM-93), Bologna Italy, August 1993.
- Organiser/Program Committee for various meetings, including some for Statistical Society of Australia, Biometric Society, International Statistical Institute, Bernoulli Society, Institute of Mathematical Statistics, Interface Foundation.

### **Editorial**

- Editorial Board, ASA/ CRC Series on Statistical Reasoning in Science and Society. 2015
   present.
- Editorial Board, Harvard Data Science Review. 2018–2021. .
- Founding editor-in-Chief, *Stat. The ISI's Journal for the Rapid Dissemination of Statistics Research.* 2011 2014.
- Editorial Board, Applied Stochastic Models in Business and Industry, 1999 present.
- Advisory Editorial Board, Wiley Series in Probability and Mathematical Statistics, 1990

   2007.
- Editorial Board, *Metrika*, 1999 2012.
- Founding Editorial Board, Journal of Computational & Graphical Statistics 1991–1995
- Founding Editorial Board, *Statistics and Computing* 1991–1995; Co–editor, 1996 2000.

- Founding Editor, BANG (Bulletin of Australian News in Geomathematics) 1981 1987.
- Editorial Correspondent, Int. Assoc. for Math. Geology, 1981–1984.
- Miscellaneous editorial

### Statistics Education

- Initiator and Coordinator, International Data Science in Schools Project, 2018–2019. IDSSP is an international collaboration of computer scientists and statisticians to develop a Curriculum Framework for a pre-calculus Data Science course for students in the last two years of high school, and a parallel framework to teach teachers how to teach this course. It is supported by all major statistical and CS societies. www.idssp.org
- Co-organiser, STEMS2016 a conference to begin transforming Statistics Education in Australia (under contract for UTS). 2 3 June, 2016, University of Technology Sydney.
- Coordinator, collaboration of Australian Universities on adoption of Tessera, 2015–2016 (under contract for UTS).
- Coordinator, ABS-SSAI Working Group on the national Syllabus in Mathematics for Schools

### **Professional Accreditation and Public Awareness**

 Foundation member, Professional Accreditation Committee, Statistical Society of Australia Inc. (SSAI). Foundation Chair, SSAI Public Awareness Committee 2000 – 2004. Member, ASA Working Group set up to develop Professional Accreditation., Advisor to establishment of professional accreditation for SSC.

### Other

- Advisory Committee, Australian Bureau of Statistics Methodological Division. 1996– 1997.
- 1995 US National Science Foundation Statistics Screening Panel

## **6. PUBLICATIONS** (peer-reviewed)

# 6.1 Books / journals

- Fisher, N.I., T. Lewis & B.J.J. Embleton Statistical Analysis of Spherical Data. 1987. Cambridge: Cambridge University Press. <a href="https://doi.org/10.1017/cbo9780511623059">https://doi.org/10.1017/cbo9780511623059</a> 1993. First paperback edition.
- Fisher, N.I.— Statistical Analysis of Circular Data. 1993. Cambridge: Cambridge University Press. <a href="https://doi.org/10.1017/cbo9780511564345">https://doi.org/10.1017/cbo9780511564345</a> 1995. First paperback edition.
- 3. Fisher, N.I. & P.K. Sen, Editors *The Collected Works of Wassily Hoeffding*. 1994. New York: Springer. https://doi.org/10.1007/978-1-4612-0865-5
- 4. Fisher, N.I., Editor Sarasohn, Homer M. & Charles B. Protzman (1948), *The Fundamentals of Industrial Management*. Civil Communications Section, GHQ, SCAP. 1998 electronic edition available at <a href="http://www.valuemetrics.com.au/resources003.html">http://www.valuemetrics.com.au/resources003.html</a>.
- 5. Fisher, N.I. (2013) Analytics for Leaders. A Performance Measurement System for Business Success. Cambridge: Cambridge University Press. ISBN 9781107045569. https://doi.org/10.1017/cbo9781107053779
- 6. Fisher, N.I., Y. Tanaka & W. H. Woodall (2019), *The Road to Quality Control. The Industrial Application of Statistical Quality Control, by H. M. Sarasohn.* Wiley. <a href="https://doi.org/10.1002/9781119515012">https://doi.org/10.1002/9781119515012</a>

## **6.2 Peer reviewed articles** (except those marked \*)

Copies of most articles are available via ResearchGate

- Brown, G.H. & N.I. Fisher Subsampling a mixture of sampled material. *Technometrics* 14(3) (1972) 663–668. <a href="https://doi.org/10.1080/00401706.1972.10488955">https://doi.org/10.1080/00401706.1972.10488955</a>
- 2. Brown, B.M., G.K. Eagleson & N.I. Fisher On the central limit problems for sums with random coefficients. *Z. Wahrscheinlichkeitstheorie verw. Geb.* **27** (1973) 171–178. https://doi.org/10.1007/bf00535846

O'Callaghan, M. & N.I. Fisher — A stochastic model for the development and immunological control of a class of parasites of sheep. *Math. Biosciences* **19** (1974) 287–297. <a href="https://doi.org/10.1016/0025-5564(74)90044-3">https://doi.org/10.1016/0025-5564(74)90044-3</a>

- 3. Fisher, N.I. A note on the evaluation of the incomplete gamma function. *J. Statist. Comput. Simul.* **2** (1973) 325–332. https://doi.org/10.1080/00949657308810058
- 4. Beattie, R.D. & N.I. Fisher The computation of zones of influence of linear geological structures. *Computers and Geosciences* **4** (1978) 77–87. https://doi.org/10.1016/0098-3004(78)90029-8
- 5. Fisher, N.I. & M.E. Willcox A useful decomposition of the resultant length for samples from von Mises–Fisher distributions. *Commun. Statist.* **B7(3)** (1978) 257–267. https://doi.org/10.1080/03610917808812075
- 6. Shepherd, J. & N.I. Fisher Faults, roof failure and mining rate: A case study in

- a NSW Colliery. *Int. J. Rock Mech. Min. Sci.* **30** (1978) 1325–1334. https://doi.org/10.1016/0148-9062(79)91282-8
- 7. Best, D.J. & N.I. Fisher Efficient simulation of the von Mises distribution. *Appl. Statist.* **28** (1979) 152–157. <a href="https://doi.org/10.2307/2346732">https://doi.org/10.2307/2346732</a>
- 8. Dickson, B.L. & N.I. Fisher Radiometric disequilibrium analysis of the carnotite uranium deposit at Yeelirrie, Western Australia. *Proc. Australas. Inst. Min. Metall.* **273** (1980) 13–19.
- 9. Fisher, N.I. & H.M. Hudson A note on the multivariate linear model with constraints on the dependent vector. *Austral. J. Statist.* **22** (1980) 75–78. <a href="https://doi.org/10.1111/j.1467-842x.1980.tb01156.x">https://doi.org/10.1111/j.1467-842x.1980.tb01156.x</a>
- 10. Fisher, N.I. One–sample probability plots. *Austral. J. Statist.* **23** (1981) 352–359. <a href="https://doi.org/10.1111/j.1467-842x.1981.tb00798.x">https://doi.org/10.1111/j.1467-842x.1981.tb00798.x</a>
- 11. Fisher, N.I. & A.J. Lee Nonparametric measures of angular–linear association. *Biometrika* **68** (1981) 629–636. <a href="https://doi.org/10.1093/biomet/68.3.629">https://doi.org/10.1093/biomet/68.3.629</a>
- 12. Best, D.J. & N.I. Fisher The bias of the maximum likelihood estimators of the von Mises–Fisher concentration parameters. *Commun. Statist.* **B10(5)** (1981) 493–502. <a href="https://doi.org/10.1080/03610918108812225">https://doi.org/10.1080/03610918108812225</a>
- 13. Shepherd, J., J.W. Creasey & N.I. Fisher Statistical analysis of spacings between geological discontinuities in coal mines, with applications to short–range forecasting of mining conditions. *Australian Coal Geology* **3** (1981) 71–80.
- 14. Fisher, N.I., T. Lewis & M.E. Willcox Tests of discordancy for samples from Fisher's distribution on the sphere. *Applied Statistics* **30** (1981) 230–237. https://doi.org/10.2307/2346346
- 15. Shepherd, J. & N.I. Fisher A rapid method of mapping fractures in mines. *Australian Coal Miner* **3(8)** (1981) 24–33.
- 16. Shepherd, J. & Fisher N. I. (1982) Rapid method of mapping fracture trends in collieries. *Trans. Soc. Min. Eng. AIME*, **270**, 1931–1932.
- 17. Lewis, T. & N.I. Fisher Graphical methods for investigating the fit of Fisher's distribution to a sample of spherical data. *Geophys. J. R. astr. Soc.* **69** (1982) 1–13. <a href="https://doi.org/10.1111/j.1365-246x.1982.tb04931.x">https://doi.org/10.1111/j.1365-246x.1982.tb04931.x</a>
- 18. Fisher, N.I. & A.J. Lee Nonparametric measures of angular—angular association. *Biometrika* **69** (1982) 315–321. https://doi.org/10.2307/2335405
- 19. Fisher, N.I. Unbiased estimation for some nonparametric families of distributions. *Ann. Statist.* **10** (1982) 603–615. https://doi.org/10.1214/aos/1176345801
- 20. Fisher, N.I. Nonparametric statistics. *The Mathematical Scientist* 7 (1982) 25–47.
- 21. Shepherd, J. & N.I. Fisher Rapid method of mapping fracture trends in collieries. *Trans. Soc. Min. Eng. AIME* **270** (1982) 1931–1932.
- 22. Fisher, N.I. Robust estimation of the concentration parameter of Fisher's distribution on the sphere. *Applied Statistics* **31** (1982) 152–154. https://doi.org/10.2307/2347979
- 23. Fisher, N.I. Contribution to Discussion of "The Statistical Analysis of Compositional Data" by J. Aitchison, *J.R. Statist. Soc.* **B 44** (1982) 165.

- 24. Fisher, N.I. & A.J. Lee A maximum problem. (Problem 82–1) *SIAM Review* **24** (1983) 76. <a href="https://doi.org/10.1137/1024006">https://doi.org/10.1137/1024006</a>
- 25. Fisher, N.I. Simulating an auto-correlated sequence of Rayleigh variables. *Math. Geol.* **15** (1983) 499–500. <a href="https://doi.org/10.1007/bf01031298">https://doi.org/10.1007/bf01031298</a>
- 26. Fisher, N.I. Graphical methods in nonparametric statistics: A review and annotated bibliography. *Int. Statist. Rev.* **51** (1983) 25–58. https://doi.org/10.2307/1402730
- 27. Fisher, N.I. & A.J. Lee A correlation coefficient for circular data. *Biometrika* **70** (1983) 327–332. <a href="https://doi.org/10.1093/biomet/70.2.327">https://doi.org/10.1093/biomet/70.2.327</a>
- 28. Fisher, N.I. & T. Lewis Estimating the common mean direction of several circular or spherical distributions with possibly differing dispersions. *Biometrika* **70** (1983) 333–341; Correction **71** (1984), 655. <a href="https://doi.org/10.1093/biomet/71.3.655">https://doi.org/10.1093/biomet/71.3.655</a> Correction <a href="https://doi.org/10.2307/2336584">https://doi.org/10.2307/2336584</a>
- 29. Embleton, B.J.J., N.I. Fisher & P.W. Schmidt Analytic comparison of Polar Wander Paths. *Earth Planet Sci. Lett.* **64** (1983) 276–282. https://doi.org/10.1016/0012-821x(83)90209-1
- 30. Fisher, N.I., T. Lewis & M.E. Willcox Comment on "Rejection of palaeomagnetic observations" by P.L. McFadden. *Earth Planet Sci. Lett.* **64** (1983) 316–317. <a href="https://doi.org/10.1016/0012-821x(83)90213-3">https://doi.org/10.1016/0012-821x(83)90213-3</a>
- 31. Fisher, N.I. Comment on ``A method for estimating the standard deviation of wind directions" by K.A. Verrall and R.L. Williams. *J. Climate Appl. Meteorology* **22(11)** (1983), 1971. <a href="https://doi.org/10.1175/1520-0450(1983)022%3C1971:comfet%3E2.0.co;2">https://doi.org/10.1175/1520-0450(1983)022%3C1971:comfet%3E2.0.co;2</a>
- 32. Fisher, N.I. & D.J. Best Goodness–of–fit tests for Fisher's distribution on the sphere. *Austral. J. Statist.* **26** (1984) 142–150.
- 33. Fisher, N.I. Comment on 'Comment on 'Determination of the angle of a Fisher distribution which will be exceeded with a given probability by P.L. McFadden' by M.E. Beck". *Geophys. J.R. astr. Soc.* **50** (1984) 283–284.
- 34. Fisher, N.I. Spherical medians. *J.R. Statist.Soc.* **B 47** (1985) 342–348. https://doi.org/10.1111/j.2517-6161.1985.tb01362.x
- 35. Fisher, N.I. & T. Lewis A note on spherical splines. *J.R. Statist. Soc.* **B 47** (1985) 482–488. https://doi.org/10.1111/j.2517-6161.1985.tb01378.x
- 36. Fisher, N.I., J.F. Huntington, D.R. Jackett, M.E. Willcox & J.W. Creasey Spatial analysis of two–dimensional orientation data. *J. Math. Geol.* **17** (1985) 177–194. https://doi.org/10.1007/bf01033153
- 37. Fisher, N.I. & P. Switzer Chi–plots for assessing dependence. *Biometrika* 72 (1985) 253–265. <a href="https://doi.org/10.1093/biomet/72.2.253">https://doi.org/10.1093/biomet/72.2.253</a>
- 38. Diggle, P.J., N.I. Fisher & A.J. Lee A comparison of tests of uniformity on the sphere. *Austral. J. Statist.* **27** (1985) 53–59. <a href="https://doi.org/10.1111/j.1467-842x.1985.tb00547.x">https://doi.org/10.1111/j.1467-842x.1985.tb00547.x</a>
- 39. Fisher, N.I. Calculation of an approximate elliptical confidence cone for the polar axis of a bipolar or girdle distribution, based on a large sample of measurements. Appendix to 'Megakinking in the Lachlan Fold Belt' by C.McA.

- Powell, J.P. Cole and T.J. Cudahy, *J. Struct. Geol.* 7 (1985), 281–300.
- 40. Diggle, P.J. & N.I. Fisher SPHERE: a contouring program for spherical data. *Computers and Geosciences* **11** (1985) 725–766. <a href="https://doi.org/10.1016/0098-3004(85)90015-9">https://doi.org/10.1016/0098-3004(85)90015-9</a>
- 41. Fisher, N.I. & A.J. Lee Correlation coefficients for random variables on the sphere and the hypersphere. *Biometrika* **73** (1986) 159–164. https://doi.org/10.1093/biomet/73.1.159
- 42. Best, D.J. & N.I. Fisher Goodness–of–fit and discordancy tests for samples from the Watson distribution on the sphere. *Austral. J. Statist.* **28** (1986) 13–31. https://doi.org/10.1111/j.1467-842x.1986.tb00580.x
- 43. Fisher, N.I. Robust tests for comparing the dispersions of several Fisher or Watson distributions on the sphere. *Geophys. J. R. astr. Soc.* **85** (1986) 563–572; Erratum **87** (1986) 1229. <a href="https://doi.org/10.1111/j.1365-246x.1986.tb04532.x">https://doi.org/10.1111/j.1365-246x.1986.tb04532.x</a>
- 44. Fisher, N.I. Robust comparison of dispersion for samples of directional data. *Austral. J. Statist.* **28** (1986) 213–219; Erratum **28** (1986) 424. <a href="https://doi.org/10.1111/j.1467-842x.1986.tb00601.x">https://doi.org/10.1111/j.1467-842x.1986.tb00601.x</a>
- 45. Fisher, N.I. Problems with the current definitions of the standard deviation of wind direction. *J. Climate Appl. Meteorology* **26** (1987) 1522–1529. https://doi.org/10.1175/1520-0450(1987)026%3C1522:pwtcdo%3E2.0.co;2
- Fisher, N.I. Spherical medians. In Encyclopaedia of Statistical Sciences, S. Kotz, N.L. Johnson & C.B. Read, Editors, 8 (1988) 603–604 New York: Wiley. https://doi.org/10.1002/9781118445112.stat00757
- 47. Diggle, P.J. & N.I. Fisher Letter to the Editor. *Computers and Geosciences* **14** (1989) 1031–1032.
- 48. Fisher, N.I. Girdle (equatorial) data/distributions. In *Encyclopaedia of Statistical Sciences*, S. Kotz, N.L. Johnson C.B. Read, Editors (1989), Supplement Volume p69. New York: Wiley. https://doi.org/10.1002/0471667196.ess3030.pub2
- 49. Fisher, N.I. & C.McA. Powell Statistical analysis of two–dimensional palaeocurrent data: methods and examples. *Austral. J. Earth Sciences* **36** (1989), 91–107. <a href="https://doi.org/10.1080/14400958908527953">https://doi.org/10.1080/14400958908527953</a>
- 50. Fisher, N.I. Smoothing a sample of circular data. *J. Struct. Geol.* **11** (1989) 775–778. <a href="https://doi.org/10.1016/0191-8141(89)90012-6">https://doi.org/10.1016/0191-8141(89)90012-6</a>
- 51. Fisher, N.I. & P. Hall Bootstrap confidence regions for directional data. *J. Am. Statist. Assoc.* **84** (1989) 996–1002. Correction (1990), **85**, 608. https://doi.org/10.1080/01621459.1989.10478864 Correction https://doi.org/10.2307/2289832
- 52. Fisher, N.I. & P. Hall On bootstrap hypothesis testing. *Austral. J. Statist.* **32** (1990) 177–190. https://doi.org/10.1111/j.1467-842x.1990.tb01011.x
- 53. Fisher, N.I. & P. Hall New statistical techniques for directional data I: Bootstrap comparison of mean directions and the Fold Test in Palaeomagnetism. *Geophys. J. Internat.* **101** (1990) 305–313. https://doi.org/10.1111/j.1365-246x.1990.tb06570.x
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## 6.3 Book Reviews

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## 6.4 Manuscripts submitted for publication

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## 7. **INVITED ARTICLES** (unrefereed)

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- 7. S.B. Dransfield, Fisher, N.I. & N.J. Vogel Using statistics and statistical thinking to monitor and improve organisation performance. Invited paper, *Proceedings of the 51st Session, International Statistical Institute* Fisher, N.I. Statistics and Performance Measurement. 1999 Knibbs Lecture.
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- 16. Fisher, N.I. How can Statistics and statisticians help Vietnam prosper? CAPS-2008. *Keynote address. Hanoi, December 2008.*.
- 17. Cribb, J & N I Fisher Will they use my science? *Plenary address*, Pathfinders Conference, Canberra 26–27 May, 2009.
- 18. Fisher, N.I. Who cares what I do? Address to attendees at the Prizes and Scholarship evening for the School of Mathematics and Statistics for 2011. <a href="http://www.maths.usyd.edu.au/u/About/Who%20cares%20about%20what%20I%20do-print.pdf">http://www.maths.usyd.edu.au/u/About/Who%20cares%20about%20what%20I%20do-print.pdf</a>.
- 19. Fisher, N.I. Alan's Statistical Saga: from Chapel Hill to Highland Park, with some Unexpected Directions, an Optimal Bet, and Trees that Grow from People. Plenary address, 62<sup>nd</sup> Annual Meeting of the New Zealand Statistical Association, 28–31 August 2011, Auckland, New Zealand. Session in honour of Alan Lee's 65<sup>th</sup> birthday.
- 20. Fisher, N.I. Statistics for the millions: How to communicate Statistics to the public. Keynote address, VvS&OR Annual Meeting, Utrecht, December 2011.
- 21. Fisher, N.I. Statistics, Performance Measurement and Corporate Collapses. Opportunities for statisticians to have an impact. Keynote address, SASA Annual Meeting, Port Elizabeth, November 2012.
- 22. Fisher, N.I. Statistics Education in Australia: *We need a revolution*. STEMS-2016, 2 June 2016, University of Technology Sydney. <a href="http://www.statsoc.org.au/wp-content/uploads/2016/04/STEMS2016-Report.pdf">http://www.statsoc.org.au/wp-content/uploads/2016/04/STEMS2016-Report.pdf</a>.
- 23. Fisher, N. I & Vogel, N. J. (2017) Obituary: Myron Tribus. http://magazine.amstat.org/blog/2017/10/01/obituary-myron-tribus/.
- 24. 2019 Deming Lecture —Walking with Giants: A Research Odyssey. Video <a href="https://www2.amstat.org/meetings/jsm/2019/webcasts/index.cfm">https://www2.amstat.org/meetings/jsm/2019/webcasts/index.cfm</a>; Slides <a href="https://www.amstat.org/ASA/Your-Career/Awards/Deming-Lecturer-Award.aspx">https://www.amstat.org/ASA/Your-Career/Awards/Deming-Lecturer-Award.aspx</a>.
- 25. Fisher, N I & D J Trewin The Critical Importance of Expert Statistical Input in Managing Epidemics. Science for Resilience Learnings from the Pandemic 23 24 May, 2022. Vienna Biocenter, Campus-Vienna-Biocenter 1, 1030 Wien.

### 8. WEBCASTS & PODCASTS

- 1. https://statsandstories.net/methods/measuring-performance
- 2. Metrics that engage leadership attention ISBIS webinar June 2024

### 9. SOFTWARE PACKAGES

Development of a software package (SPHERE) which displays, rotates, contours,

and performs basic statistical calculations on a sample of spherical measurements (vectors or axes).

### 10. PROPRIETARY METHODOLOGY AND TRADEMARKS

Lead developer of the OPM® (Organisational Performance Measurement) system. OPM® was licensed to the Australian Quality Council, taught at University of Wollongong and the Mount Eliza Business School, and adopted by a number of Australian enterprises. It is owned separately by R. Burke, N. I. Fisher & N.J. Vogel.

Australian Trade Mark # 959843 PMF® Performance Measurement System Australian Trade Mark # 959823 SVM® Stakeholder Value Management Opal® Performance Measurement System.

## 11.INDUSTRY REPORTS

- 1. Shepherd J., L.K. Rixon & N.I. Fisher *Improved Methods of Forecasting Faults to Assist Underground Mining* 1989. Report to Australian Coal Association.
- 2. Hatherly, P.J., J. Shepherd, B.J. Evans & N.I. Fisher *Integration of Methods for the Prediction of Faults*. 1993. Report to NERDDC.
- 3. Fisher, N.I., J.H. Friedman, W.L. Griffin & F.V. Kaminski. Statistical Modelling and Prediction of the Structure of the Earth's Upper Mantle: a Framework for Mineral Exploration. I. 1995. Report to DITARD.
- 4. Fisher, N.I., J.H. Friedman, W.L. Griffin & F.V. Kaminski. Statistical Modelling and Prediction of the Structure of the Earth's Upper Mantle: a Framework for Mineral Exploration. II. 1997. Report to DITARD.
- 5. Fisher, N.I., J.H. Friedman & W.L. Griffin A New Approach to Data Mining of Massive Data Sets, with Application to Area Selection in Mineral Exploration. 1999. Report to DITARD.
- 6. Fisher, N.I. & C.M. Malaguerra A Peer Review of EUSTAT (the Basque Statistics Office). 2003. 75pp. Confidential report to EUSTAT.
- 7. Fisher, N.I. & Peacock, A.J. *ARC Engagement and Impact Consultation Paper: Response*. June 2016, 14*pp*. <a href="http://crca.asn.au/wp-content/uploads/2016/10/ARC-E-I-Response-CRC-Association.pdf">http://crca.asn.au/wp-content/uploads/2016/10/ARC-E-I-Response-CRC-Association.pdf</a>
- 8. Fisher, N. I., Howley, P., Martin, M. A. & Ryan, L. (2016). Final report: STEMS2016. Putting Statistics into STEM in the Age of Data. A Colloquium and Workshop organized by the Statistical Society of Australia, 2–3 June, 2016, at University of Technology Sydney. <a href="http://www.statsoc.org.au/wp-content/uploads/2016/04/STEMS2016-Report.pdf">http://www.statsoc.org.au/wp-content/uploads/2016/04/STEMS2016-Report.pdf</a>
- 9. Fisher, N. I. (2016), *Statistical analysis of survey data collected from Catholic Church authorities*. Report to the Truth, Justice and Healing Council, December 2016.
- 10. Fisher, N. I. & A. J. Lee (2017), *Comments on the Weighted Average methodology*. Report to the Truth, Justice and Healing Council, January 2017.
- 11. Fisher, Nicholas & Stephen Sasse (2018), Banking, Superannuation and Financial

- Services Industry Royal Commission Submission Response to Interim Report. <a href="https://financialservices.royalcommission.gov.au/Submissions/Documents/interim-report-submissions/POL.9100.2000.0011.pdf">https://financialservices.royalcommission.gov.au/Submissions/Documents/interim-report-submissions/POL.9100.2000.0011.pdf</a>
- 12. IDSSP Curriculum team (2019), (Nicholas Fisher Chair, Ajay Anand, Robert Gould, John Bailer, Tim Hesterberg, James Bailey, Raymond Ng, Wesley Burr, James Rosenberger, Alan Fekete, Neil Sheldon, Alison Gibbs, Chris Wild), *Progress Report to Societies supporting IDSSP*.
- 13. IDSSP Curriculum team (2019), *Curriculum Frameworks for Introductory Data Science*, <a href="http://www.idssp.org/files/IDSSP\_Frameworks\_1.0.pdf">http://www.idssp.org/files/IDSSP\_Frameworks\_1.0.pdf</a>
- 14. "Some critical issues relating to Australia's strategy for international education". A submission in response to the Connected, Creative, Caring: Australian Strategy for International Education 2021-2030 Consultation Paper, March 2021.
- 15. Dennis Trewin & Nicholas Fisher (2022), Submission to "Audit of Australia's COVID-19 Rollout". 15pp.
- 16. Nicholas Fisher, Dennis Trewin & Noel Cressie (2023), <u>Submission to the Royal Commission Enquiry into the Robodebt Scheme</u>. Also available <u>here</u>.

### 12. SOME RECENT AND CURRENT PROJECTS

- Strategic Planning at Mellon College of Science, Carnegie-Mellon University, 2017). Implementation of Strategic Planning in the four departments at MCS, and for MCS itself.
- Strategic Planning at Pittsburgh Supercomputing Center.
- Introduction of a Culture Improvement process for Oxfam Australia.
- (with Dennis Trewin) <u>A proposal to enhance Australia's capability to manage epidemics. The critical importance of expert statistical input</u>. August 2020. Submitted to the Australian government PM&C. **DOI:** 10.13140/RG.2.2.31657.62565

### 13. CONFIDENTIAL CLIENT REPORTS – not listed.

### 14. RESEARCH GRANTS

- 1. Australian Coal Association: J. Shepherd, L.K. Rixon & N.I. Fisher. *Develop and Improve Methods of Forecasting Faults to Assist Underground Mining*.
- 2. NERDDC: P.J. Hatherly, J. Shepherd, B.J. Evans & N.I. Fisher. *Integration of Methods for the Prediction of Faults*. Project 1588.
- 3. Department of Industry, Technology and Regional Development Grant under the International Science & Technology Scheme: N.I Fisher, J.H. Friedman, W.L. Griffin & F.V. Kaminski. Statistical Modelling and Prediction of the Structure of the Earth's Upper Mantle: a Framework for Mineral Exploration.
- 4. Department of Industry, Technology and Regional Development Grant under the International Science & Technology Scheme: N.I. Fisher, J.H. Friedman & W.L. Griffin, A New Approach to Data Mining of Massive Data Sets, with Application to Area Selection in Mineral Exploration.
- 5. ARC Small Grants Scheme, A.J. Baddeley & N.I. Fisher, *Stochastic Modelling and Extrapolation of Geological Fault Patterns*.

- 6. Australian Academy of Science Travel Grant.
- 7. International Seminar Support Scheme Travel Grant, 2008

### 15. PhD SUPERVISION

Co-supervision with P. G. Hall:

Davies, S. J. (1998), Stochastic Analysis of Surface Roughness.

### 16. TECHNICAL REPORTS

- 1. Notes on the general linear model and related distribution theory. CSIRO Technical Paper No. 8, April 1972 (with G.M. Tallis).
- 2. Extended figures and tables for the inter-comparison of faults, roof failure and mining rate in a New South Wales Colliery. CSIRO MRL Investigation Report
- 3. 125 (1978) 16pp and Figs (with J. Shepherd).
- 4. Graphical methods in non–parametric statistics: an annotated bibliography. Report Series No. 141, Department of Mathematics, University of Auckland (1979) 32 pp.
- 5. Smoothing time-ordered sequences of palaeomagnetic pole positions.
- 6. Confidence intervals for the mean direction and circular median.
- 7. A robust test for comparing the dispersions of two or more Fisher distributions on the sphere.
- 8. Calculation of elliptical confidence regions for principal or polar axes.
- 9. An edging tool (with R.L. Sandland).
- 10. Smoothing a sample of measurements.
- 11. Confidence regions for mean vectors: preliminary report.
- 12. Testing samples of pH data for multimodality.
- 13. Statistical analysis of coal samples.
- 14. Combining independent P-values when sample sizes are known.
- 15. Automatic Flotation Control System: Design for Trial Evaluation (with D F Nicholls and R Cunningham), 1986, 8 pages. Capricorn Coal Management Pty Ltd.
- 16. Analysis of relationship between Haplotype and LQT using comparison of siblings.
- 17. Possibilities for further statistical quality control measures for the paper tape and scouring pad manufacturing processes (with R.L. Sandland) (No. 86/24/9).
- 18. Audit of the non-woven fabric process (with R.L. Sandland) (No. 86/36/11).
- 19. Investigation of Roof/Floor Convergence at Goaf Edge Sites during Pillar Extraction A Preliminary Analysis (with T. Lewis).
- 20. Analysis of relationship between Haplotype and LQT using comparison of siblings.
- 21. Analysis of multimodal sets of two-dimensional orientation data (with J.S. Marron).
- 22. An investigation into modelling fracture patterns of dykes and faults at Gunnedah Colliery (with A.J. Baddeley).
- 23. Statistical analysis of chromites: an application of modern multivariate statistical methods (with J.H. Friedman & W.L. Griffin).
- 24. Statistical techniques for classification of chromites in diamond exploration samples (with J.H. Friedman & W.L. Griffin). Exploration and Mining Report 127R, April 1995.

## 17. MISCELLANEOUS UNREVIEWED ARTICLES etc.

- 1. Statistics Education in Australia: The Ongoing Saga of SSAI Strategic Objective 6. SSAI News March 2010. Available at <a href="https://www.statsoc.org.au/resources/Documents/Newsletters/2010-March-SSAINews130.pdf">https://www.statsoc.org.au/resources/Documents/Newsletters/2010-March-SSAINews130.pdf</a>.
- 2. Fisher, N. I. and Lee, A.J., "A note on a generic market index for collectables". <a href="https://protect-au.mimecast.com/s/YvlJCBNqjlCDrz616uzP3Ok?domain=arxiv.org">https://protect-au.mimecast.com/s/YvlJCBNqjlCDrz616uzP3Ok?domain=arxiv.org</a> **DOI:** 10.13140/RG.2.2.25767.52642.
- 3. <u>ODA: Oral Data Analysis</u>. Video presentation to DATA-86: Data Analysis: Tomorrow's Answers. SSA (NSW Branch) two-day workshop, Sydney, July 1986.