Curriculum Vitae — Rhys Hawkins

Details

Name	Rhys Hawkins
Citizenship	Australian
Address	5 Franklin Place Murrumbateman NSW 2582 Australia
Email	rhys.hawkins@gmail.com

Qualifications

Bachelor of Information Technology (Software Engineering) 1996
Australian National University

Bachelor of Engineering (Honours) 1998
Australian National University

Master of Philosophy (Computer Science) 2002
Australian National University

Doctor of Philosophy (Geophysics) 2018
Australian National University

Professional Experience

Siemens Plessey/British Aerospace 1998 - 1999
Software Engineer

- Military Message System development in C/C++

Electro-Optic Systems 1999
Software Engineer

- Embedded systems development in C/C++ and Ada

CSIRO CMIS Virtual Environments Lab 2001 - 2003
Research Programmer

- Real-time surgery simulation for surgeon training using virtual reality and haptics.

Department of Computer Science, Australian National University 2003 - 2006
Research Programmer

- Multicast collaboration tools development.

NCI Supercomputer Facility 2006 - 2013
Visualization/HPC Programmer

- Scientific visualization and HPC software development.

University de Lyon 2018 - 2019
Post-doctoral researcher

- Trans-dimensional geophysical inversion methods.

Utrecht University 2019 - 2022
Post-doctoral researcher

- Approximate full waveform approach to subsurface monitoring with model order reduction techniques.

Australian National University 2022 -
Jubillee Joint Fellow

- Joint School of Computing/Research School of Earth Sciences fellowship

Awards

Australian Postgraduate Award Scholarship	2014
Outstanding Student Presentation Award, AGU Fall Meeting	2014
Best Student Paper, Geophysical Journal International	2015
ASEG ACT Student Scholarship	2016

Journal Articles

1: Cox W., Charles C., Boswell R. W., and Hawkins R. Spatial retarding field energy analyzer measurements downstream of a helicon double layer plasma. *Applied Physics Letters*, 93(7):071505, 2008. doi: 10.1063/1.2965866.

2: Cox W., Hawkins R., Charles C., and Boswell R. Three-dimensional mapping of ion density in a double-layer helicon plasma. *IEEE Transactions on Plasma Science*, 36(4):1386–1387, 2008. doi: 10.1109/TPS.2008.924429.

3: Charles C., Boswell R. W., and Hawkins R. Oblique double layers: A comparison between terrestrial and auroral measurements. *Phys. Rev. Lett.*, 103:095001, 2009. doi: 10.1103/PhysRevLett.103.095001.

4: Cox W., Hawkins R., Charles C., Boswell R. W., Laine R., and Perren M. Three-dimensional magnetic field mapping of the magnetically steered helicon double-layer thruster. *IEEE Transactions on Plasma Science*, 39(11): 2460–2461, 2011. doi: 10.1109/TPS.2011.2160095.

5: Greig A., Charles C., Hawkins R., and Boswell R. Direct measurement of neutral gas heating in a radio-frequency electrothermal plasma micro-thruster. *Applied Physics Letters*, 103(7):074101, 2013. doi: 10.1063/1.4818657.

6: Heslop D., Roberts A. P., and Hawkins R. A statistical simulation of magnetic particle alignment in sediments. *Geophysical Journal International*, 197(2):828 – 837, 2014.

7: Iaffaldano G., Hawkins R., and Sambridge M. Bayesian noise-reduction in Arabia/Somalia and Nubia/Arabia finite rotations since 20Ma: Implications for Nubia/Somalia relative plate motions. *Geochemistry, Geophysics, Geosystems*, 15(4):845 – 854, 2014.

8: Iaffaldano G., Hawkins R., Bodin T., and Sambridge M. REDBACK: Open source software for efficient noise-reduction in plate kinematic reconstructions. *Geochemistry, Geophysics, Geosystems*, 15(4):1663 – 1670, 2014.

9: Ingham L., Heslop D., Roberts A. P., Hawkins R., and Sambridge M. Is there a link between geomagnetic reversal frequency and paleointensity? a Bayesian approach. *Journal of Geophysical Research: Solid Earth*, 119(7):5290 – 5304, 2014.

10: Charles C., Bish A., Boswell R., Dedrick J., Greig A., Hawkins R., and Ho T. S. A short review of experimental and computation diagnostics for radiofrequency plasma micro-thrusters. *Plasma Chemistry and Plasma Processing*, pages 1–16, 2015.

11: Charles C., Hawkins R., and Boswell R. Particle in cell simulation of a radio frequency plasma jet expanding in vacuum. *Applied Physics Letters*, 106(9), 2015.

12: Hawkins R. and Sambridge M. Geophysical imaging using trans-dimensional trees. *Geophysical Journal International*, 203(2):972 – 1000, 2015.

13: Saygin E., Cummins P.R., Cipta A., Hawkins R., Pandhu R., Murjaya J., Masturyono, Irsyam M., Widiyantoro S., and Kennett B.L.N. Imaging architecture of the Jakarta basin, indonesia with transdimensional inversion of seismic noise. *Geophysical Journal International*, 204(2):918–931, 2016.

14: Dettmer J., Hawkins R., Cummins P. R., Hossen J., Sambridge M., Hino R., and Inazu D. Tsunami source uncertainty estimation: The 2011 Japan tsunami. *Journal of Geophysical Research: Solid Earth*, 121:4483 – 4505, 2016. doi: 10.1002/2015JB012764.

15: Hayward K. S., Cox S. F., Fitz Gerald J. D., Slagmolen B. J. J., Shaddock D. A., Forsyth P. W. F., Salmon M. L., and Hawkins R. P. Mechanical amorphization, flash heating, and frictional melting: Dramatic changes to fault surfaces during the first millisecond of earthquake slip. *Geology*, 2016. doi: 10.1130/G38242.1.

16: Kallenberg B., Tregoning P., Hoffman J. F., Hawkins R., Purcell A., Allgeyer S., and Koulali A. A new approach to estimate ice dynamic rates using satellite observations. *Cryosphere*, 2017.

17: Hawkins R., Brodie R., and Sambridge M. Trans-dimensional Bayesian inversion of airborne electromagnetic data for 2D conductivity profiles. *Exploration Geophysics*, 2017. doi: 10.1071/EG16139.

18: Hawkins R. A spectral element method for surface wave dispersion and adjoints. *Geophysical Journal International*, 215(1):267–302, 2018.

19: Le Losq C., Jollands M. C., Tollan P. M. E., Hawkins R., and O'Neill H. St. C. Making the invisible visible: Point defect populations of forsterite revealed by hydroxylation spectroscopy. *Mineralogy and Petrology*, 2019.

20: Hawkins R. and Sambridge M. An adjoint technique for estimation of interstation phase and group dispersion from ambient noise cross-correlations. *Bulletin of the Seismological Society of America*, 2019.

21: Hawkins R., Husson L., Choblet G., and Bodin T. Virtual tide gauges for predicting relative sea level rise. *Journal of Geophysical Research : Solid Earth*, 2019.

22: Hawkins R., Bodin T., Sambridge M., Choblet G., and Husson L. Trans-dimensional surface reconstruction with different classes of parameterization. *Geochemistry, Geophysics, Geosystems*, 2019.

23: Hayward K. S., Hawkins R., Cox S. F., and Le Losq C. Rheological controls on asperity weakening during earthquake slip. *Journal of Geophysical Research: Solid Earth*, 124(12):12736 – 12762, 2019.

24: Rosalia S., Cummins P., Widiyantoro S., Yudistira T., Nugraha A. D., and Hawkins R. Group velocity maps using subspace and trans-dimensional inversions: Ambient noise tomography in the western part of Java, Indonesia. *Geophysical Journal International*, 220(2):1260 – 1274, 2019.

25: Pejic T., Hawkins R., Sambridge M., and Tkalcic H. Trans-dimensional bayesian attenuation tomography of the upper inner core. *Journal of Geophysical Research: Solid Earth*, 124(2):1929 – 1943, 2019.

26: Herijani B., Hassan R., Gorbatov A., Sambridge M., Hawkins R., Valentine A., Czarnota K., and Zhao J. Ambient noise tomography of Australia: application to AusArray deployment. In *Exploring for the Future: Extended Abstracts*. Geoscience Australia, 2020.

27: Pilia S., Jackson J. A., Hawkins R., Kaviani A., and Ali M. Y. The southern Zagros collisional orogen: new insights from transdimensional trees inversion of seismic noise. *Geophysical Research Letters*, 47(4), 2020.

28: Fokker E., Ruigrok E., Hawkins R., and Trampert J. Physics-based relationship for pore pressure and vertical stress monitoring using seismic velocity variations. *Remote Sensing*, 13(14), 2021.

29: Mousavi S., Tkalcic H., Hawkins R., and Sambridge M. Lowermost mantle shear-velocity structure from hierarchical trans-dimensional Bayesian tomography. *Journal of Geophysical Research: Solid Earth*, 126(9), 2021.

30: Brett H., Hawkins R., Waszek L., Begheim C., and Deuss A. 3D transdimensional seismic tomography of the inner core. *Earth and Planetary Science Letters*, 2022. in review.

31: Khalid M. H., Hawkins R. P., Schlottbom M., and Smetana K. Reduced order modelling for generating synthetic seismograms. *Geophysical Journal International*, 2022. in prep.

32: Hawkins R., Trampert J., and Smetana K. On the relationship between normal modes and model order reduction : towards full waveform monitoring applications. *Geophysical Journal International*, 2022. in prep.

33: Hayward K. S., Forsyth P., Slagmolen B., Cox S., and Hawkins R. In-situ measurement of the onset of dynamic slip in triaxial experiments at seismic conditions. *Geophysical Journal International*, 2022. in review.

34: Kumar V., Rai S. S., Hawkins R., and Bodin T. Seismic imaging of crust between the western Tibet-Pamir and western Himalaya using ambient noise and earthquake waveform data. *Journal of Geophysical Research: Solid Earth*, 2022. in review.