

JONATHAN CARROLL, PHD

I provide software design and implementation for statistics, analysis, visualisation, exploration, curation, and storage - all things data.

I enjoy solving complex puzzles, both mathematical, algorithmic, and biological.

I am comfortable with a UNIX/Linux environment. I have successfully navigated remote positions since 2017.



Also available as PDF and HTML
at jcarroll.com.au

EDUCATION

- 2009
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2006
- PhD Theoretical Physics**
University of Adelaide 📍 Adelaide, South Australia
 - Thesis: Applications of the Octet Baryon Quark-Meson Coupling Model to Hybrid Stars <https://doi.org/10.48550/arXiv.1001.4318>
 - Bachelor of Science, Honours Physics & Theoretical Physics**
University of Adelaide 📍 Adelaide, South Australia

RESEARCH EXPERIENCE

- 2013
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2009
- Postdoc**
Special Research Centre for the Subatomic Structure of Matter 📍 University of Adelaide
 - Dense matter nuclear astrophysics, hybrid stars
 - Muonic hydrogen spectroscopy, “the proton radius puzzle”

INDUSTRY EXPERIENCE

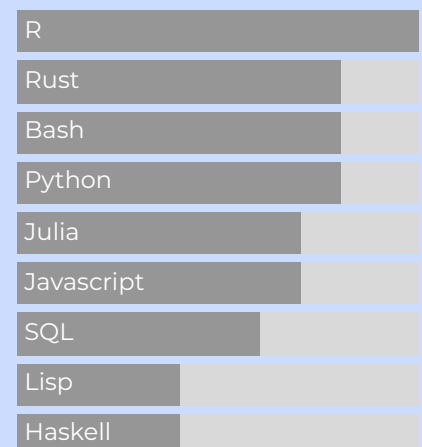
- Current
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2022
- Senior Research Software Engineer**
Human Immunology Biosciences (HI-Bio) 📍 South San Francisco (remote)
 - Development of internal tooling supporting translational science, antibody discovery, and infrastructure.
 - R (shiny), Python, Docker, AWS, Benchling, clinical trials
- Current
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2016
- Editor**
RWeekly 📍 rweekly.org
 - Compilation, curation, and editing of the rweekly.org newsletter
- Current
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2015
- Principal Consultant**
Irregularly Scheduled Programming 📍 Adelaide, South Australia
 - Independent contractor / consultant (ABN: 43486039320)

CONTACT

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- 🌐 [carrolljonathan](https://www.linkedin.com/in/carrolljonathan)
- 🌐 [jonocarroll](https://www.github.com/jonocarroll)
- 📧 fosstodon.org/@jonocarroll
- 🐦 [carroll_jono](https://twitter.com/carroll_jono)
- 🏠 [jonathan-carroll](https://www.jonathan-carroll.com)
- 📞 0000-0002-1404-5264

I have experience working in academia, government, and in both large and small biotech.

LANGUAGE SKILLS



2022
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2021

Technical Lead / co-Product Owner

Cancer Immunology Department @ Genentech / Roche
📍 South San Francisco, CA, USA (remote)

- Coordinated development of a large shiny app project for interactive exploration of genomics visualisation, aimed at life-scientists without coding experience. Remotely directed a team of 10 developers located worldwide.
- R (shiny), CSS, JavaScript, HTML, SQL/SQLite, Docker, Git, database management, statistics, computational biology/genomics, management, agile scrum, leadership

2022
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2017

Data Curator / Integrator & Software Developer

Cancer Immunology Department @ Genentech / Roche
📍 South San Francisco, CA, USA (remote)

- Developed software tooling supporting extraction and integration of multiple high-dimensional data modalities for FAIRification of internal data (MultiAssayExperiment / DataMart).
- R (Bioconductor, shiny), CSS, JavaScript, HTML, Docker, Git

2017
|
2013

Senior Research Officer / Fisheries Modeller

South Australian Research and Development Institute (SARDI)
📍 Government of South Australia

- Developed and maintained fisheries stock assessment models, spatio-temporal catch rate analyses, and geographic information system tools
- Database management, statistics, biology, and the interface between fishers and government policy
- R, C++ (ADMB), SQL, Microsoft Access



SELECTED WRITINGS

2023
2022
2022
2021
2020
2019
2018

[Hyperlink Annotations in JavaScript and CSS](#)

[Australian Signals Directorate 50c Coin Decryption](#)

[Lissajous Curve Matrix in Julia](#)

[Adventures in x86 ASM with rx86](#)

[isEven without modulo](#)

[r-bugs :: object_size](#)

[Adding strings in R](#)



SELECTED SOFTWARE PACKAGES

{ggeasy} (author, maintainer) [CRAN](#)

- Provides a series of aliases to commonly used but difficult to remember 'ggplot2' sequences

{bomrang} (contributor) [CRAN](#)

- Australian Government Bureau of Meteorology ('BOM') Data Client

I regularly write on my blog <https://jcarroll.com.au> about puzzles, syntax, and my own learnings as I explore multiple languages - R, Julia, Rust, Python, JavaScript, Lisp, Haskell, and many more.

I contribute R packages to open-source software and engage with users, integrating feature requests and bug fixes.

● **{datapasta}** (contributor) [CRAN](#)

- RStudio addins and R functions that make copy-pasting vectors and tables to text painless

● **{mathpix}** (author, maintainer) [CRAN](#)

- Support for the 'Mathpix' API (Image to 'LaTeX')

● **{benchlingapi}** (author, maintainer) [GitHub](#)


- Wraps the Benchling API for access in R



SELECTED PUBLICATIONS

- 2022 ● **Natural killer cell educating KIR/HLA combinations impact survival in anti-PD-L1 treated cancer patients**
[medRxiv](#)
- 2021 ● **Genetic variation associated with thyroid autoimmunity shapes the systemic immune response to PD-1 checkpoint blockade**
[Nature Communications](#), volume 12, number 3355
- 2020 ● **Polygenic risk for skin autoimmunity impacts immune checkpoint blockade in bladder cancer**
[Proceedings of the National Academy of Sciences](#), volume 117, number 22, 12288-12294
- 2018 ● **Beyond Spreadsheets with R**
<https://www.manning.com/books/beyond-spreadsheets-with-r>
 - Manning Publications
 - 352 pages
- 2016 ● **Influence of Wind and Swelloncatch Rates in a Dive Fishery: A Case Study from the South Australian Abalone Fishery**
[Journal of Shellfish Research](#), volume 35, number 3, 685-694
- 2016 ● **Setting quotas using provisional data: a case study from the South Australian abalone fisheries**
[New Zealand Journal of Marine and Freshwater Research](#), volume 50, number 3, 371-388
- 2016 ● **Spawning biomass of jack mackerel (*Trachurus declivis*) off eastern Australia: Critical knowledge for managing a controversial fishery**
[Fisheries Research](#), volume 179, 10-22
- 2014 ● **Quark-meson coupling model, nuclear matter constraints, and neutron star properties**
[Physical Review C - Nuclear Physics](#), volume 89, number 6
- 2012 ● **Nuclear quasielastic electron scattering limits nucleon off-mass shell properties**
[Physical Review C - Nuclear Physics](#), volume 86, number 6

I have experience as a first author and as a collaborator on articles in a diverse range of fields.

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- 2011 • **Nonperturbative relativistic calculation of the muonic hydrogen spectrum**
Physical Review A - Atomic, Molecular, and Optical Physics, volume 84, number 1
- 2011 • **Toward a resolution of the proton size puzzle**
Physical Review A - Atomic, Molecular, and Optical Physics, volume 84, number 2
- 2009 • **Phase transition from quark-meson coupling hyperonic matter to deconfined quark matter**
Physical Review C - Nuclear Physics, volume 79, number 4
- 2005 • **Neutral pion decay into w in dense Skyrmion matter**
Physical Review D - Particles, Fields, Gravitation and Cosmology, volume 71, number 11