James Tripp

Senior Research Software Engineer, University of Warwick

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I am a technologist and cognitive scientist with a strong background in empirical experimental methods and data analysis. I have taught and used a variety of tools including natural language processing, machine learning, social media analysis, visualisation and geospatial analysis. I work with both the Python and R programming languages, and have recently been using and helping to design cloud services. Throughout my career I have delighted in adopting and understanding new methods and approaches to support others and address both technical and data challenges. I am passionate about the use of technical methods, data analytics and large scale ML techniques for the public good.

Relevant Skills

Machine learning, Frequentist and Bayesian Statistics, Cognitive Modelling, Experimental Design, Visualisation, NLP, GIS. Teaching and coaching academics, Masters and PhD students. Programming in Python, R and Matlab. Azure services including VMs and APIs.CI/CO pipelines.

Education

University of Warwick *Coventry, UK*
Ph.D. in Psychology *2013*

- Comparing cognitive models using Maximum likelihood and Bayesian parameter estimation
- Designing, programming and carrying out Psychology experiments
- Teaching statistics and programming to Masters and Undergraduate students

University of Warwick *Coventry, UK*
B. Sc.(Hons) in Psychology *2010*

Experience

Information and Digital Group @ University of Warwick *Coventry, UK*
Senior Research Software Engineer *Oct 2021 - Present*

I am currently part of a central team working with academic and technical staff across the University of Warwick.

- Helping build common infrastructure and services which solve challenges faced by multiple departments (e.g., computational platforms such as JupyterHub on Kubernetes and Open OnDemand). These solutions are built upon our new Azure tenancy.
- Identifying and supporting good research software practice. These include data documentation, container usage, DOIs, code reviews, devops practices (CI/CO), and git repositories.
- Designing and developing research software. These projects range wildly from fitting or extracting labels from ML models (e.g., BERT[HuggingFace], Detectron2[pyTorch], Resnet[Keras/Tensorflow]) to website creation using Humanities tools such as Omeka S.
- Working as part of the Centre for Digital Inquiry to broaden the usages for Critical Digital Humanities tools, Deep Learning, data analytics and other technologies in the Humanities.

Centre for Interdisciplinary Methodologies @ University of Warwick *Coventry, UK*
Senior Academic Technologist *June 2019 - Oct 2021*

In addition to the Academic Technology work below, I:

- Managed an Academic Technology team
- Consulted on technical and strategic development of the Centre
- Integral to the writing of and working on research grants

Centre for Interdisciplinary Methodologies @ University of Warwick *Coventry, UK*
Academic Technologist *Dec 2015 - June 2019*

Arriving at a growing centre, I wrote software, taught workshops, and research infrastructure in a rich interdisciplinary environment.

- Collaborated, supported and worked alongside academics from diverse domains including ecology, computer science, sociology, media studies, anthropology and philosophy.
- Designed and taught 100s of hours of workshop and labs (see Teaching, below) to both technical and non-technical audiences from different backgrounds, including many computational techniques including machine learning, inferential statistics and network analysis
- Developed and administered 10s of Linux servers providing a research and teaching infrastructure
- Wrote research software including data science and visualisation

Department of Psychology @ University of Warwick *Coventry, UK*
Post-Doctoral Research Fellow *Oct 2013 - Sept 2016*

I worked alongside Prof. Adam Sanborn and Prof. Neil Stewart to examine how people combine information.

- Designed, wrote and carried out Psychological experiments
- Read cutting edge literature and designed novel hypothesis
- Tested hypothesis using Bayesian and inferential statistics with linear and non-linear models

Awards and Grants

Walkability Perception and its Relations to Scenery Elements and Socio-Demographics (Warwick) *£5K*
co-Investigator *2021*

Shaping 21st Century AI: Controversy and Closure in Research, Policy and Media (ORA, ESRC) *€1.7M*
Research Software Engineer *2021*

COVID and the social life of testing (Warwick) *£5K*
collaborator *2020*

What Aren't You Seeing? (Turing Institute) *£305K*
co-Investigator *2019*

Visual Diagnostics for Markov Chain Monte Carlo – Backfillz.R (Turing Institute) *£53K*
co-Investigator *2018*

Teaching

IM939: Data Science Across Disciplines *2020 - June 2021*
- Designed and delivered labs, supported student projects
- Python Notebooks - Pandas, NumPy, SciKit-Learn, Seaborn, Altair
- Data Wrangling and cleaning, dimension reduction (LDA, PCA, t-SNE)
- Model fitting and comparison techniques

IM931: Interdisciplinary Approaches to Machine Learning *2018 - 2021*
- Wrote and taught labs using Keras(Tensorflow)
- Inspired by Chollet's 'Deep Learning with Python'
- Supported student projects in Python and R (reticulate)

IM921: Visualisation *2017 - 2021*
- Collaboratively designed and taught labs
- Critically developing visualisations using Python and R
- Facilitated critical discussion of tools and methods

QS903: Advanced Quantitative Research *2017 - 2019*
- Wrote and delivered supplementary workshops
- Inferential statistics including GLM and hierarchical models
- Supported and supervised quantitive dissertations

IM913: Spatial Methods and Practice in Urban Science *2016 - 2021*
- GIS systems (QGIS, ArcGIS, GeoDa)
- Python and R workflows (inc. geographically weighted regression)

IM906: Dissertation *2015 - 2021*
- Supported and supervised qualitative and quantitative dissertations

- Topics include geospatial analysis, web scraping, NLP, computer vision models

QSTEP Masterclass: Social Media Analysis *2019 - 2021*
- Designed and delivered session (materials)

QSTEP Masterclass: SQL *2020 - 2021*
- Designed and delivered session (materials)

IM904: Digital Objects, Digital Methods *2015 - 2021*
- Designed novel curriculum including social media analysis, query design and digital methods

IM902: Approaches to the Digital *2015 - 2021*
- Designed novel labs leading critical web art projects

IM920: Digital Sociology *2016 - 2018*

PS923: Methods and Analysis in Behavioral Science *2012 - 2013*
- Led and assisted in sessions fitting behavioral models

PS113: Statistical Methods in Psychology *2010 - 2013*
- Led statistical labs using basic frequentist statistics

Publications

- Cagatay, T,. Sondag, M., Neil, G., **Tripp, J** (2022). Should We Keep It Real? A Crowdsourcing Study on Realistic Analogies in Visualisations for Communicating Disease Spread. *IEEE VIS 2022 conference*. (Submitted)
- Sanborn, A. N., Noguchi, T., **Tripp, J**, & Stewart, N. (2020). A dilution effect without dilution: When missing evidence, not non-diagnostic evidence, is judged inaccurately. *Cognition*, 196, 104110.
- **Tripp, J.**, & Brown, G. D. (2016). Being paid relatively well most of the time: Negatively skewed payments are more satisfying. *Memory & cognition*, 44(6), 966-973.

References

References will be provided upon request.