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Skills

Python	HPC	Machine learning
Postgres/SQL	R	CI
PostGIS	Simulation	Javascript/React
Numpy/SciPy/Pandas	Docker	Data engineering
Jupyter	Statistics	Software development
Java	Survey data	Data science
CDR	Version control	Visualisation

Experience

2016-current

Data Scientist & Engineer, Flowminder Foundation

Developing, applying, and productionising analysis of telecoms and population data for humanitarian, developmental and crisis response needs.

Introduced the use of Deck.gl for building compelling, interactive and shareable visualisations, led work to standardize ETL pipelines and introduce continuous integration testing.

Currently lead developer of the FlowKit project - an effort to open source and enhance Flowminder's data analysis toolkit for crunching big data without big resources which has secured \$1.2M of funding for the organisation.

2012-2016

Teaching Assistant, University of Southampton

Worked as a teaching assistant on both introductory statistics, and Python courses, supporting undergraduates' learning.

2010-2012

Technical Support, Communications International Group

Supported day-to-day operations at a busy publisher by troubleshooting PC/OSX and hardware issues; managing Server 2003/Exchange system and liaising with third-party contractors/suppliers. Delivered integrated OSX/Windows login system, WiFi installation, desktide user training, onsite backup solution, and developed an in-house expenses reporting tool using Python/Django.

Software

FlowKit

Mobile phone data analysis toolkit built in Python, Postgres, React and Docker. A complete solution to big data analysis without big resources.

<https://github.com/Flowminder/FlowKit>

Pullbot

Small tool for managing GitHub pull requests.

<https://github.com/greenape/pullbot>

SSCC Temporal Difference Simulator

A Java simulator for the extended Temporal Difference model of associative conditioning, with GUI.

<https://github.com/cal-r/sscctd>

Education

09/2012-09/2016

PhD Complex Systems Simulation and Social Statistics, University of Southampton, Southampton

09/2009-07/2012

BSc Computer Science with Artificial Intelligence (1st), City University, London

Publications

Zagatti, G.A., Gonzalez, M., Avner, P., Lozano-Gracia, N., Brooks, C.J., Albert, M., Gray, J., Antos, S.E., Burci, P., zu Erbach-Schoenberg, E. and Tatem, A.J., (2018). A trip to work: Estimation of origin and destination of commuting patterns in the main metropolitan regions of Haiti using CDR. *Development Engineering*, 3, pp.133-165.

Gray, J., Hilton, J., Bijak, J. (2017) Choosing the choice: Reflections on modelling decisions and behaviour in demographic agent-based models. *Population Studies* 71(1), 85-97

Gray, J., Bijak, J., & Bullock, S. (2016). Deciding to Disclose: A Decision Theoretic Agent Model of Pregnancy and Alcohol Misuse. In A. Grow & J. Van Bavel (Eds.), *Agent-Based Modelling in Population Studies* (pp. 301–340). Dordrecht: Springer.

Mondragón, E., Gray, J., Alonso, E., Bonardi, C., Jennings, D. SSCC TD: A Serial and Simultaneous Configural-Cue Compound Stimuli Representation for Temporal Difference Learning. *PLoS ONE* 9 (7), e102469

Interests

Interests include juggling, origami, cycling, volunteering, baking, and occasional extreme sports (performed a 13,000' solo skydive; raising £750 for Marie Curie Cancer Care).

References

Available on request.