James Stewart

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EDUCATION

University of Oxford Oxford, UK
DPhil (PhD) in Computer Science Oct 2018 –Apr 2023

- Supervised by Leslie Ann Goldberg and Andreas Galanis in the Algorithms and Complexity group.
- Thesis title: *Randomised algorithms for low temperature spin systems.*

Imperial College London London, UK
MEng in Mathematics and Computer Science (First Class Honours) Oct 2013 –Jul 2017

- Thesis title: *The computational complexity of bribery in a network-based rating system* (Distinguished Project award, 2017).

PROFESSIONAL EXPERIENCE

Amazon Luxembourg, Luxembourg
Applied Scientist Intern Jul 2023 –Feb 2024

Samsung Research London, UK
Research Engineer Intern Sep 2022 –Jun 2023

- Applying tools from graph theory to model compression, with applications in computer vision.
- First author on *Data-free model pruning at initialization via expanders.*
- Writing code to perform random graph based pruning of CNNs using PyTorch and NetworkX.

Amadeus Nice, France
Software Engineer Aug 2017 –Apr 2018

- Back-end C++ software engineer in an agile scrum team working on a hotel reservation system.
- Implementation of XML and REST JSON services, interacting with Oracle and Couchbase.

TECHNICAL SKILLS

Python (PyTorch, NumPy, NetworkX), C++, Unix, Git, LaTeX.

PUBLICATIONS

1. J. Stewart, U. Michieli, M. Ozay. *Data-free model pruning at initialization via expanders.* Efficient Deep Learning for Computer Vision Workshop, CVPR 2023.

2. J. Stewart. *Randomised algorithms for low temperature spin systems.* Doctoral dissertation, University of Oxford, 2023.

3. A. Galanis, L. A. Goldberg, and J. Stewart. *Fast mixing via polymers for random graphs with unbounded degree.* Information and Computation (2022): 104894. An extended abstract also appeared at APPROX-RANDOM 2021. [†]

4. A. Galanis, L. A. Goldberg, and J. Stewart. *Fast algorithms for general spin systems on bipartite expanders.* ACM Transactions on Computation Theory (TOCT) 13, no. 4 (2021): 1-18. An extended abstract also appeared at MFCS 2020. [†]

5. Z. Chen, A. Galanis, L. A. Goldberg, W. Perkins, J. Stewart, and E. Vigoda. *Fast algorithms at low temperatures via Markov chains.* Random Structures & Algorithms 58, no. 2 (2021): 294-321. An extended abstract also appeared at APPROX-RANDOM 2019. [†]

6. U. Grandi, J. Stewart, and P. Turrini. *Personalised rating.* Autonomous Agents and Multi-Agent Systems 34, no. 2 (2020): 1-38. [†]

7. U. Grandi, J. Stewart, and P. Turrini. *The complexity of bribery in network-based rating systems.* AAAI Conference on Artificial Intelligence, vol. 32, no. 1. 2018. [†]

[†]Authors listed in alphabetical order.