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   London, UK
Applied Scientist II   Jan 2024 –Present

Amazon   Luxembourg, Luxembourg
Applied Scientist PhD Intern   Jul 2023 –December 2023

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

- Applying tools from graph theory to model compression, with applications in computer vision.
- 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 implementating XML and REST JSON services.

TECHNICAL SKILLS

C++, Java (JGraphT, JUnit, Mockito), Python (PyTorch, NumPy, NetworkX), OOP, 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.