

Arian Rokkum Jamasb

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Date of Birth: 5th June 1996 | **Nationality:** Norwegian | **Webpage:** jamasb.io | **Github:** a-r-j | **LinkedIn:** /jamasb

EDUCATION

2018-(2022)	<p>PhD. Computational Biology Group, Artificial Intelligence Group, Department of Computer Science and Biocomputing Group, Department of Biochemistry University of Cambridge</p> <p>Artificial intelligence for structural biology & drug discovery. <i>Supervisor:</i> Professor Sir Tom Blundell, Department of Biochemistry. <i>Second Supervisor:</i> Professor Pietro Lió, Department of Computer Science and Technology.</p>
2014-2017	<p>BSc. Biochemistry, Imperial College London (1st Class Honours)</p> <p><i>Dissertation:</i> Automated Quantification of Cells Across Whole-Brain Image Volumes. <i>Specialist modules:</i> Bioinformatics, Integrative Systems Biology, Neuroscience Research.</p>
2007-2014	<p>The Perse School, Cambridge. Academic Scholar. <i>A Levels:</i> Mathematics, Further Mathematics, Biology, Chemistry</p>

RESEARCH EXPERIENCE

2021-	<p><i>AI Resident.</i> X - The Moonshot Factory (formerly Google[X]), Mountain View, CA.</p> <ul style="list-style-type: none">• Deep learning research for an early-stage project
2020-2021	<p><i>Machine Learning Consultant.</i> Relation Therapeutics, London, UK.</p> <ul style="list-style-type: none">• Deep learning research for biological data
2017-2018	<p><i>Graduate Research Assistant.</i> Drosophila Connectomics Group, Department of Zoology, University of Cambridge. (Dr. G. Jefferis, Dr. M. Costa).</p> <p>Neural Circuit Reconstruction and Connectomic Analysis of a Whole-Brain <i>Drosophila</i> Electron Microscopy Image Volume</p> <ul style="list-style-type: none">• Examining odour information integration circuits and their role in innate sexual behaviour• Neuroinformatics, development of computational tools, Analysis of electron micrographs• Statistical image analysis, image registration
2017	<p><i>Undergraduate Dissertation.</i> Department of Life Sciences, Imperial College London. Automated Quantification of Neuronal Distribution Across Whole-Brain Image Volumes (Prof S. Brickley).</p> <ul style="list-style-type: none">• Image processing, computer vision, algorithm design• Whole-brain 2-photon imaging in mice• Bioinformatics
2016-2017	<p><i>Undergraduate Research Assistant.</i> Department of Life Sciences, Imperial College London. Developing a Dynamic Optogenetics System for High-Throughput Behavioural Manipulation of <i>Drosophila</i> (Dr G. Gilestro).</p> <ul style="list-style-type: none">• Statistical analysis and modelling of large time-series data• Computer-aided design (CAD), 3D printing and electrical engineering• Machine learning applied to behaviour analysis

PUBLICATIONS

BOOK CHAPTERS

- 2021 **Deep Learning for Protein-Protein Interaction Site Prediction.** A. R. Jamasb, B. Day, C. Cangea, P. Lió & T. L. Blundell. *Methods in Molecular Biology: Proteomics Data Analysis*. Springer.

UNDER REVIEW

- 2021 **Structure-Aware Generation of Drug-Like Molecules.** P. Drotár, A. R. Jamasb, B. Day, C. Cangea, P. Lió. *Under review at MLSB 2021*
- 2021 **GraphHiC - A Python Library for Creating Bespoke Graph Datasets from Hi-C & Multi-omics Data.** D. Hall, A. R. Jamasb, M. Rozenwald, P. Lió. *Under Review at NeurIPS 2021*
- 2021 **A Case for Domain Expert Dataset Curation in Machine-Learning Enabled Chemistry.** R. Griffiths, A. R. Thawani, A. R. Jamasb, H. Moss, A. Bourached, P. Jones, W. McCorkindale, A. A. Aldrick. *Under Review at NeurIPS 2021*
- 2021 **Graphein - a Python Library for Geometric Deep Learning and Network Analysis on Protein Structures and Interaction Networks.** A. R. Jamasb, R. Viñas Torné, E. J. Ma, C. Harris, K. Huang, D. Hall, P. Lió, T. L. Blundell. *Under Review at NeurIPS 2021*
- 2020 **Message Passing Neural Processes** B. Day*, C. Cangea*, A. R. Jamasb, P. Lió. <https://arxiv.org/abs/2009.13895>. *Under Review at Journal of Machine Learning Research*

PRE-PRINTS

- 2021 **On Graph Neural Network Ensembles for Large-Scale Molecular Property Prediction** E. E. Kosasih, J. Cabezas, X. Sumba, P. Bielak, K. Tagowski, K. Idanwekhai, B. A. Tjandra, A. R. Jamasb. <https://arxiv.org/abs/2106.15529>
- 2020 **The Photoswitch Dataset: A Molecular Machine Learning Benchmark for the Advancement of Synthetic Chemistry** A. R. Thawani*, R. Griffiths*, A. R. Jamasb, A. Bourached, P. Jones, W. McCorkindale, A. Aldrick, A. A. Lee. <https://arxiv.org/abs/2008.03226>

PEER REVIEWED

- 2021 **Predicted Structural Mimicry of Spike Receptor-Binding Motifs from Highly Pathogenic Human Coronaviruses.** C. A. Beaudoin, A. R. Jamasb, A. F. Alsulami, L. Copoiu, A. J. van Tonder, S. Hala, B. P. Bannerman, S. E Thomas, S. Chaitanya Vedithi, P. H M Torres, T. L. Blundell. *Computational and Structural Biotechnology Journal*
- 2021 **Utilising Graph Machine Learning within Drug Discovery and Development** T. Gaudet, B. Day, A. R. Jamasb, J. Soman, C. Regep, G. Liu, J. B. R. Hayter, R. Vickers, C. Roberts, J. Tang, D. Roblin, T. L. Blundell, M. M. Bronstein, J. P. Taylor-King. *Briefings in Bioinformatics*.
- 2020 **SARS-CoV-2-3D Database: Understanding the Coronavirus Proteome and Evaluating Possible Drug Targets.** A. F. Alsulami*, S. Thomas*, A. R. Jamasb*, C. Beaudoin, I. Moghul, B. Bannerman. L. Copoiu, S. C. Vedithi, P. Torres, T. L. Blundell. *Briefings in Bioinformatics*

2020	Graphein - a Python Library for Geometric Deep Learning and Network Analysis on Protein Structures. A. R. Jamasb, P. Lió, T. L. Blundell. <i>Graph Representation Learning and Beyond Workshop at International Conference on Machine Learning (ICML) 2020</i>
2020	Complete Connectomic Reconstruction of Olfactory Projection Neurons in the Fly Brain. A. S. Bates*, P. Schlegel*, R. J. V. Roberts, N. Drummond, I. F. M. Tamimi, R. G. Turnbull, X. Zhao, E. C. Marin, P. D. Popovici, S. Dhawan, A. R. Jamasb, A. Javier, F. Li, G. M. Rubin, S. Waddell, D. D. Bock, M. Costa, G. S. X. E. Jefferis. <i>Current Biology</i>
2020	Benchmarking Scalable Active Learning Strategies on Molecules R. Griffiths, A. Aldrick, W. McCorkindale, P. Jones, A. R. Jamasb, B. J. Day, A. A. Lee. <i>Poster presented at Fundamental Science in the Era of AI Workshop at International Conference on Learning Representations (ICLR) 2020</i>
2019	Functional and Anatomical Specificity in a Higher Olfactory Centre S. Frechter, A. S. Bates, S. Tootoonian, M. J. Dolan, J. D. Manton, A. R. Jamasb, J. Kohl, D. Bock, G. S. X. E. Jefferis. <i>eLife</i>
2017	Ethoscopes: An Open Platform for High-Throughput Ethomics. Q. Geissmann, L. García Rodriguez, E. J. Beckwith, A. S. French, A. R. Jamasb, and G. F. Gilestro. <i>PLoS Biology</i> .

SCIENTIFIC COMPUTING AND PROGRAMMING¹

python	<i>Highly competent:</i> scientific computing, data analysis, machine learning, deep learning
ML	<i>Highly Competent:</i> PyTorch, Tensorflow, Keras, DGL
R	<i>Highly competent:</i> base functions, statistics, algebra, data visualisation and package development.
System	<i>Competent:</i> GNU/Linux.
Web	<i>Competent:</i> javascript and HTML/CSS.

AWARDS

2020	Fellow, Cambridge Philosophical Society (FCPS)
2020	Munro Studentship (teaching scholarship), <i>Queens' College, Cambridge</i>
2018	BBSRC PhD Studentship
2012-14	Chemistry Scholarship, <i>The Perse School, Cambridge</i>

ACADEMIC SERVICE

TEACHING & SUPERVISION

COURSES

2020	Part IA Discrete Mathematics <i>Department of Computer Science & Technology, University of Cambridge</i>
2020	Part IB Artificial Intelligence <i>Department of Computer Science & Technology, University of Cambridge</i>
2020	Part IB Computation Theory <i>Department of Computer Science & Technology, University of Cambridge</i>
2019-	Part II Computer Vision <i>Department of Computer Science & Technology, University of Cambridge</i>
2019-	Part II Bioinformatics <i>Department of Computer Science & Technology, University of Cambridge</i>

¹Most of my contributions are open-source and publicly available (see github.com/a-r-j)

MPHIL PROJECTS

2021 | *Structure-aware Generation of Molecules in Protein Pockets*. Pavol Drotar. (92%)

UNDERGRADUATE PROJECTS

2021 | *Exploring Adversarial Attacks on Medical Image Trained Deep Neural Networks*. Melissa Yao (81%)

REVIEWING

Journals	<i>Nature Machine Intelligence</i> <i>Briefings in Bioinformatics</i> <i>Computational and Structural Biotechnology</i> <i>Journal of Open Source Software</i> <i>Progress in Biophysics and Molecular Biology</i>
Conferences	NeurIPS 2021
Workshops	<i>MLSys 21</i> Workshop on Graph Neural Networks and Systems (<i>GNNSys21</i>) <i>AAAI-21</i> Workshop on Graphs and more Complex Structures for Learning and Reasoning (<i>AAAI-21 GCLR</i>). ML4Molecules Workshop at <i>NeurIPS 2020</i> Graph Representation Learning and Beyond Workshop at <i>ICML 2020</i>

VOLUNTEERING AND OUTREACH

2020	Data Champion, Research Data Management Advocate, <i>University of Cambridge</i>
2019	Local Organiser, <i>IWBDA Conference</i> Events Officer, <i>Queens' College MCR</i>
2018	Volunteer Demonstrator, Science Festival, <i>University of Cambridge</i>
2016	Webmaster, <i>Imperial College Biochemistry Society</i> Public engagement volunteer, <i>Biochemical Society</i> Public engagement volunteer, <i>Royal Society of Biology</i> .
2014	Volunteer tutor in mathematics, <i>Queen Edith's Primary School, Cambridge</i>

REFERENCES

PhD Supervisor: Professor Sir Tom Blundell (tom@bioc.cryst.cam.ac.uk)
PhD Supervisor: Professor Pietro Lió (pl219@cam.ac.uk)
PI, Drosophila Connectomics Group: Dr Gregory Jefferis (jefferis@mrc-lmb.ac.uk)
Project Leader, Drosophila Connectomics Group: Dr Marta Costa (mmc46@cam.ac.uk)
Undergraduate Personal Tutor: Professor Anne Dell (a.dell@imperial.ac.uk)