

# Arian Rokkum Jamasb

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Date of Birth: 5<sup>th</sup> June 1996 | Nationality: Norwegian | Webpage: [jamasb.io](http://jamasb.io) | Github: [a-r-j](https://github.com/a-r-j) | LinkedIn: [/jamasb](https://www.linkedin.com/company/jamasb)

## EDUCATION

2018-(2022)	<p><b>PhD. Computational Biology Group, Artificial Intelligence Group, Department of Computer Science and Biocomputing Group, Department of Biochemistry University of Cambridge</b></p> <p>Artificial intelligence for structural biology &amp; 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><b>BSc. Biochemistry, Imperial College London</b> (1<sup>st</sup> 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><b>The Perse School, Cambridge.</b> Academic Scholar. <i>A Levels:</i> Mathematics, Further Mathematics, Biology, Chemistry</p>

## RESEARCH EXPERIENCE

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

## 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 **Structural Characterization of Newly Discovered ORFs in the SARS-CoV-2 Proteome**. C. A. Beaudoin\*, A. F. Alsulami\*, L. Copoiu\*, **A. R. Jamasb\***, S. C. Vedithi, P. H.M. Torres, T. L. Blundell. *Under review at Briefings in Bioinformatics*.
- 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 **Structure-Aware Generation of Drug-Like Molecules**. P. Drotár, **A. R. Jamasb**, B. Day, C. Cangea, P. Lió. *NeurIPS-W MLSB 2021 (Selected for spotlight talk)*
- 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	<b>SARS-CoV-2-3D Database: Understanding the Coronavirus Proteome and Evaluating Possible Drug Targets.</b> A. F. Alsulami*, S. Thomas*, <b>A. R. Jamasb*</b> , C. Beaudoin, I. Moghul, B. Bannerman. L. Copoiu, S. C. Vedithi, P. Torres, T. L. Blundell. <i>Briefings in Bioinformatics</i>
2020	<b>Graphein - a Python Library for Geometric Deep Learning and Network Analysis on Protein Structures.</b> <b>A. R. Jamasb</b> , P. Lió, T. L. Blundell. <i>Graph Representation Learning and Beyond Workshop at International Conference on Machine Learning (ICML) 2020</i>
2020	<b>Complete Connectomic Reconstruction of Olfactory Projection Neurons in the Fly Brain.</b> 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, <b>A. R. Jamasb</b> , A. Javier, F. Li, G. M. Rubin, S. Waddell, D. D. Bock, M. Costa, G. S. X. E. Jefferis. <i>Current Biology</i>
2020	<b>Benchmarking Scalable Active Learning Strategies on Molecules</b> R. Griffiths, A. Aldrick, W. McCorkindale, P. Jones, <b>A. R. Jamasb</b> , 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	<b>Functional and Anatomical Specificity in a Higher Olfactory Centre</b> S. Frechter, A. S. Bates, S. Tootoonian, M. J. Dolan, J. D. Manton, <b>A. R. Jamasb</b> , J. Kohl, D. Bock, G. S. X. E. Jefferis. <i>eLife</i>
2017	<b>Ethoscopes: An Open Platform for High-Throughput Ethomics.</b> Q. Geissmann, L. García Rodriguez, E. J. Beckwith, A. S. French, <b>A. R. Jamasb</b> , and G. F. Gilestro. <i>PLoS Biology</i> .

## SELECTED TALKS

2021	<i>Artificial Intelligence in Drug Discovery.</i> <a href="#">Astex Pharmaceuticals</a>
2021	ELIXIR 3D BioInfo Community Annual Meeting 2021. <i>Poster</i>
2020	Graph Representation Learning and Beyond Workshop at ICML (ICML-GRL+). <i>Poster</i>

## SCIENTIFIC COMPUTING AND PROGRAMMING<sup>1</sup>

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 AND AFFILIATIONS

2021	President's Letter for Outstanding Academic Achievement, <i>Queens' College, Cambridge</i>
2020	Fellow, <a href="#">Cambridge Philosophical Society</a> (FCPS)
2020	Munro Studentship (teaching scholarship), <i>Queens' College, Cambridge</i>
2018	BBSRC PhD Studentship
2017	Associate, Royal College of Science (ARCS)
2012-14	Chemistry Scholarship, <i>The Perse School, Cambridge</i>

<sup>1</sup>Most of my contributions are open-source and publicly available (see [github.com/a-r-j](https://github.com/a-r-j))

## ACADEMIC SERVICE

### TEACHING & SUPERVISION

#### COURSES

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

#### MPHIL PROJECTS

2021	<i>Structure-aware Generation of Molecules in Protein Pockets.</i> Pavol Drotar. (92%). Selected for oral presentation at NeurIPS-MLSB.
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#### UNDERGRADUATE PROJECTS

2021	<i>Exploring Adversarial Attacks on Medical Image Trained Deep Neural Networks.</i> Melissa Yao (81%)
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### REVIEWING

<b>Journals</b>	<i>Nature Machine Intelligence</i> <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</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>
<b>Conferences</b>	NeurIPS 2021
<b>Workshops</b>	AAAI-22 Workshop on Graphs and more Complex structures for Learning and Reasoning (AAAI-22 GCLR) <i>MLSys 21</i> Workshop on Graph Neural Networks and Systems ( <i>GNNSys21</i> ) AAAI-21 Workshop on Graphs and more Complex Structures for Learning and Reasoning (AAAI-21 GCLR). 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>

### LINKS

Webpage	<a href="https://jamasb.io">jamasb.io</a>
GitHub	<a href="https://github.com/a-r-j">github.com/a-r-j</a>
LinkedIn	<a href="https://www.linkedin.com/in/jamasb">linkedin.com/in/jamasb</a>
Google Scholar	<a href="https://scholar.google.co.uk/citations?user=hYm9a-UAAAAJ&amp;hl=en">https://scholar.google.co.uk/citations?user=hYm9a-UAAAAJ&amp;hl=en</a>
Semantic Scholar	<a href="https://www.semanticscholar.org/author/A.-Jamasb/26992145">https://www.semanticscholar.org/author/A.-Jamasb/26992145</a>
ResearchGate	<a href="https://www.researchgate.net/profile/Arian-Jamasb">https://www.researchgate.net/profile/Arian-Jamasb</a>

## REFERENCES

*PhD Supervisor:* Professor Sir Tom Blundell ([tom@bioc.cryst.cam.ac.uk](mailto:tom@bioc.cryst.cam.ac.uk))

*PhD Supervisor:* Professor Pietro Lió ([pl219@cam.ac.uk](mailto:pl219@cam.ac.uk))

*PI, Drosophila Connectomics Group:* Dr Gregory Jefferis ([jefferis@mrc-lmb.ac.uk](mailto:jefferis@mrc-lmb.ac.uk))

*Project Leader, Drosophila Connectomics Group:* Dr Marta Costa ([mmc46@cam.ac.uk](mailto:mmc46@cam.ac.uk))

*Undergraduate Personal Tutor:* Professor Anne Dell ([a.dell@imperial.ac.uk](mailto:a.dell@imperial.ac.uk))