



# Matthew Lyon

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I am currently a PhD student in the Machine Learning group at the University of Manchester. My research focuses on improving MRI data through deep learning, and incorporating geometric priors into deep learning models. I have prior experience working as a research software engineer at several research institutes.

## 🎓 Education

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2020 – present United Kingdom	<b>PhD in Computer Science</b> , <i>University of Manchester</i>
2015 – 2016 Australia	<b>Master of Medical Physics</b> , <i>University of Sydney</i>
2011 – 2014 United Kingdom	<b>BSc (Hons) in Physics</b> , <i>University of Warwick</i>

## 💼 Professional Experience

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08/2019 – 08/2020 Sydney, Australia	<b>Research Software Engineer</b> , <i>Save Sight Institute</i> <i>Part Time 0.8 FTE</i> <ul style="list-style-type: none"><li>• Developed, tested, and documented neuroimaging processing pipelines.</li><li>• Lead algorithm design and optimisation workflows.</li><li>• Consulted on neuroimaging analysis techniques and signal processing.</li></ul>
08/2019 – 01/2020 Sydney, Australia	<b>Neuroimaging Analyst</b> , <i>Sydney Neuroimaging Research Centre</i> <i>Part Time 0.4 FTE</i> <ul style="list-style-type: none"><li>• <i>Developed and implemented neuroimaging analysis pipelines.</i></li><li>• Performed QC on MRI analysis.</li></ul>
07/2017 – 07/2019 Sydney, Australia	<b>Research Software Engineer</b> , <i>Heart Research Institute</i> <i>Full Time</i> <ul style="list-style-type: none"><li>• Built and managed a distributed computing cluster.</li><li>• Developed, tested, and documented neuroimaging processing pipelines.</li><li>• Oversaw data ingestion and QC/QA, created dashboard visualisations.</li><li>• Conducted clinical research using MRI data.</li></ul>

## 🔧 Technologies

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Python • TensorFlow • PyTorch • NumPy • C++ • Ubuntu • Docker • Bash • Matlab

## Publications

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- 2019      **Gender-specific structural abnormalities in major depressive disorder revealed by fixel-based analysis**, *NeuroImage: Clinical*  
Matthew Lyon, Thomas Welton, Adrina Varda, Jerome J. Maller, Kathryn Broadhouse, Mayuresh S. Korgaonkar, Stephen H. Koslow, Leanne M. Williams, Evian Gordon, A. John Rush, Stuart M. Grieve
- 2019      **Is occipital bending a structural biomarker of risk for depression and sensitivity to treatment?**, *Journal of Clinical Neuroscience*  
Karen Fullard, Jerome J. Maller, Thomas Welton, Matthew Lyon, Evian Gordon, Stephen H. Koslow, Stuart M. Grieve
- 2019      **Profound and reproducible patterns of reduced regional gray matter characterize major depressive disorder**, *Translational Psychiatry*  
Sarah C. Hellewell, Thomas Welton, Jerome J. Maller, Matthew Lyon, Mayuresh S. Korgaonkar, Stephen H. Koslow, Leanne M. Williams, John A. Rush, Evian Gordon, Stuart M. Grieve
- 2019      **Structural core of the executive control network: A high angular resolution diffusion MRI study**, *Human Brain Mapping*  
Kai-kai Shen, Thomas Welton, Matthew Lyon, Andrew N. McCorkindale, Greg T. Sutherland, Samantha Burnham, Jurgen Fripp, Ralph Martins, Stuart M. Grieve

## Courses

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- 10/2020      **C++: From Beginner to Expert**, *Udemy*
- 06/2020      **Convolutional Neural Networks**, *Coursera*
- 06/2020      **Sequence Models**, *Coursera*
- 02/2020      **Neural Networks and Deep Learning**, *Coursera*
- 01/2020      **Machine Learning**, *Coursera*