Justin Jude

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EDUCATION

- **University of Edinburgh** Edinburgh, UK
  Doctor of Philosophy in Machine Learning & Computational Neuroscience *Sep. 2018 - December 2022*
  - **Research Area**: Latent variable modelling of neural data, biologically plausible deep learning and neural predictive manifolds.
  - **Supervisors**: Dr Matthias Hennig and Dr Arno Onken
- **University College London** London, UK
  Master of Engineering in Mathematical Computation; 1st Class Honours *Sep. 2014 - July 2018*
- **Bancroft's School** Woodford Green, UK
  A-levels; 4A*s *Sep. 2007 - July 2014*

PUBLICATIONS

- **Capturing cross-session neural population variability through self-supervised identification of consistent neuron ensembles**
  ***Justin Jude**, Matthew G Perich, Lee E Miller, Matthias H Hennig.*
  Proceedings of the NeurIPS Workshop on Symmetry and Geometry in Neural Representations 2022
- **Robust alignment of cross-session recordings of neural population activity by behaviour via unsupervised domain adaptation**
  ***Justin Jude**, Matthew G Perich, Lee E Miller, Matthias H Hennig.*
  International Conference on Machine Learning (ICML) 2022
- **Targeted Neural Dynamical Modeling**
  *Cole Hurwitz, Akash Srivastava, Kai Xu, **Justin Jude**, Matthew Perich, Lee Miller, Matthias Hennig*
  Advances in Neural Information Processing Systems 34 (NeurIPS) 2021
- **Hippocampal representations emerge when training recurrent neural networks on a memory dependent maze navigation task**
  ***Justin Jude**, Matthias H Hennig*
  COSYNE 2022

RESEARCH EXPERIENCE

- **University of Edinburgh** Edinburgh, UK
  Researcher *Sep 2018 - Present*
  - **Institute for Adaptive and Neural Computation**: Our institute is interested in a broad range of theoretical aspects of machine learning as well as applications. My research focuses on the intersection of Machine Learning and Computational Neuroscience, specifically on latent variable modelling using sequential autoencoders, deep spiking neural networks and neural predictive manifolds.
- **University College London** London, UK
  Researcher *Sep 2017 - May 2018*
  - **Master's Research Project**: Learning hard quantum states with variational autoencoders.
- **University College London** London, UK
  Research Assistant *May 2017 - July 2017*
  - **Smart Contracts**: Researching Smart Contracts. Implemented commercial smart contracts in conjunction with Linklaters and Barclays. Incorporated Operational, Temporal and Deontic Logic as well as Natural Language Processing.
- **University College London** London, UK
  Student *Jan 2016 - May 2016*
  - **Directed Reading**: Summarizing, researching and reviewing seminal research papers in Computer Science by prominent authors including Strassen, C.A.R Hoare, Burstall and Lamport.

Professional Experience

- **Huawei Technologies** London, UK
  Machine Learning Scientist *May 2019 - Sep 2019*
  - **Colour Constancy and Domain Adaptation**: Worked at Huawei AI Research in London at the Noah's Ark lab looking at colour constancy and using Domain Adaptation to improve Auto White Balance.

- **Papercup** London, UK
  Machine Learning Engineer *May 2018 - Sep 2018*
  - **Neural Speech Synthesis**:
    Worked at an innovative start-up using Machine Learning for Speech Processing and Neural Machine Translation. I was the company's first hire.

- **Amazon** London, UK
  Software Development Engineer Intern *July 2017 - Oct 2017*
  - **Contribution Catalog**:
    Worked in the Amazon Selection and Catalog Systems division within the Contribution Catalog team. I developed a Diagnostic tool which surfaced API data to the unified Amazon Diagnostics interface.

- **BAE Systems** Rochester, UK
  Software Engineering Summer Intern *June 2016 - Sep 2016*
  - **Research and Development: Project 1**:
    The first was an Asset Tracking system using Raspberry Pis and Bluetooth Low Energy tags fixed to high value assets such as oscilloscopes etc and is currently being used internally at BAE Systems.
    A java application connected to a database would then show the user in real time which room and shelf a particular asset could be found in.
  - **Research and Development: Project 2**:
    I was using accelerometer, gyroscope and magnetometer sensors to trace the movement of sport apparatus through space and effectively trace the movement in real time on an Android tablet.
    The project was hardware and mathematically heavy. I gained considerable knowledge of MATLAB while on this project and the complex techniques required to accurately trace the arc of an object through space using calculus and high-pass filters.

- **JP Morgan** London, UK
  Participant *March 2016*
  - **Machine Learning Workshop**: Worked with Cambridge Coding Academy at the Canary Wharf Headquarters going over Machine Learning techniques in detail and how such processes are used in financial services. Culminated in a competition in which we designed an intelligent spam filter for emails which was proficient in detecting fraudulent emails.

- **Santander UK** London, UK
  Software Engineer *Aug 2015 - Oct 2015*
  - **Risk Prediction**: Built an app in a team of 2 for the Santander Risk Department at the Santander UK Headquarters at Triton Square. The application calculates the return on regulatory capital for the user based on a plethora of parameters.

Awards

- **EPSRC DTA Award**: Scholarship for PhD funding and stipend.
- **UCL Provost's Excellence Scholarship**: Scholarship for outstanding grades and academic excellence.
- **Draper's Academic Scholarship**: Scholarship based on academic merit, academic ability, leadership potential and intellectual curiosity.