Daniel Whettam

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Machine Learning and Computer Vision PhD student with both academic and industrial experience. I'm looking to transition into industry upon completion in April 2024. I have strong programming skills backed by an in-depth theoretical understanding of Machine Learning and Computer Vision. I am a very experienced PyTorch developer and have expertise in multiple areas of artificial intelligence and machine learning including computer vision, deep learning, signal processing (audio, speech), and natural language processing. I'm a highly motivated and personable individual who loves to learn and engage with new ideas, and participate within the wider machine learning and artificial intelligence community.

Education

- **PhD - Artificial Intelligence** **Supervisor: Prof. Dima Damen**
  The University of Bristol *2019–April 2024*
  - AI and Computer Vision PhD focusing on video understanding, particularly Egocentric Video
  - Conducted multiple research projects working extensively with PyTorch, Python, Pandas, and others.
  - Implemented novel CNN and Transformer based architectures for Computer Vision applications
  - Processed large scale video and audio datasets across multiple GPUs on HPC clusters
  - Applied novel methods to audio classification on egocentric video
  - Developed a novel self-supervision method for improving action recognition performance
  - Created a new multi-modal approach to counting in repetitive videos.
  - Local lead for managing Bristol Universities access to the JADE2 HPC Cluster
  - Supervised MSc project on generating videos using GAN's
- **MSc Data Science** **Supervisor: Prof. Amos Storkey**
  The University of Edinburgh, Merit *2018–2019*
  - Extensive study into Machine Learning and Data Science, ranging from theoretical Bayesian machine learning to applied deep learning
  - Implemented advanced deep learning algorithms in Python/NumPy, large scale Neural Networks in PyTorch, as well as classic computer vision algorithms in MATLAB.
  - Developed skills for dealing with large scale datasets and compute, using technologies such as Google Cloud Platform and MapReduce
  - Developed a novel approach for finding good teacher networks when performing network distillation.
- **BSc (Hons) Computer Science**
  The University of Hull, 1st class *2015–2018*
  - Very strong first class degree encompassing a broad range of topics within Computer Science
  - Completed a final year project classifying cancer patients - recognised as one of the top BSc projects of the year
  - Particular focus on software development in C++ and C#

Skills

- **Programming Languages/Packages/Frameworks:** Python (5+ years), PyTorch (5 years), OpenCV, NumPy, torchvision, Slurm, C++, C# (10 years), Docker, TensorFlow, Hadoop MapReduce, Keras, SKLearn, Pandas, Stan, Matlab, Latex, Linux, Git, Prolog, C, SQL.
- **General Technical skills:** Machine Learning, Computer Vision, big data, Git, GitHub, Linux, Windows, Latex, Bash scripting, databases, up to date knowledge of PC hardware.

Experience

- **AI Research Engineer - Imagination Technologies** **London/Remote**
  Keywords: NeRF, Jax, PyTorch, WebGL, Docker *July 2023–October 2023*
  - Applied state-of-the-art NeRF models to low resource environments
  - Implemented and trained NeRF models, conducted performance testing and benchmarking on IMG GPUs
  - Worked extensively with Jax, PyTorch, WebGL, and Docker
  - Developed internal documentation on using NeRF models and how to use Docker for CUDA environments
  - Presented my work internally to the AI Research Team
- **Visiting Researcher - Columbia University** **New York City**
  Supervisor: Prof. Carl Vondrik *June 2022–July 2022*
  Keywords: Large scale datasets, PyTorch, audio-visual, Convolutional Neural Networks
  - Developed a large scale video dataset using traditional computer vision algorithms to automatically generate psuedo labels
  - Created deep learning architectures in PyTorch for counting repetitions in video
  - Worked within a larger team at Columbia, regularly engaging in reading groups, discussing state-of-the-art research and learning about work adjacent to my own
- **Teaching Assistant - The University of Bristol** **Bristol**
  Keywords: PyTorch, NumPy, Pandas, SkLearn *Oct 2020–present*
  Teaching assistant for: Applied Deep Learning, Machine Learning, Applied Data Science (Lead TA).
  - Implemented research papers in Pytorch, converted my implementation into a skeleton code-base for students to complete. Produced documentation for students on my skeleton code and how to access data.
  - Assisted students with lab work and helped with preparing Jupyter Notebooks for labs. Lab work involves programming in Python, implementing machine learning models and performing statistical analysis on data.
- **Research Assistant - STFC Hartree Centre** **Sci-Tech Daresbury**
  Keywords: Speech Recognition, Deep Learning, Transfer Learning, Azure *June 2018–August 2018*
  - Researched applications of transfer learning for deep end-to-end speech recognition systems for use in assisted living environments through the Pepper robot
  - Used transfer learning to train RNN's written in TensorFlow and trained on Azure to recognise regional UK dialects
  - My work from this project has been accepted for presentation at the 2019 Interspeech workshop on Pluricentric Languages in Speech Technology
- **Laboratory Demonstrator - The University of Hull** **Hull**
  Keywords: C++, C#, Python *Sept 2016–July 2018*
  Lab Demonstrator for: Artificial Intelligence (Python), Advanced Programming (C++), Networking and User Interface Design (C#), Programming 1 (C#). Engaged with students and academics during labs, assisting students with lab work and assignments.

Scholarships and Awards

- **PhD Scholarship**
  EPSRC Centre for Doctoral Training Studentship *September 2019*
- **Outstanding BSc Final Project**
  Recognised as one of the top BSc projects for the 2018 class *July 2018*

Interests and Additional Information

- Passionate about self-hosting. I host many of my own services on personal servers. I'm very familiar with Linux distributions, data storage solutions, Docker, etc.
- 2022/23 General Secretary for the University of Bristol Brazilian Jiu Jitsu Society.