Yash MEHTA

Research Engineer 2 | HHMI Janelia Research Campus

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DOB : 11 December 1995 (26 years), India

Hi! I'm currently a research engineer working at the intersection of deep learning and neuroscience at the Funke Lab. I am very fortunate to have gotten the opportunity to have worked with brilliant researchers along the way. I have worked on Neural Architecture Search with **Prof Frank Hutter** (ELLIS Fellow). Previously, I was at the Gatsby Computational Neuroscience Unit at UCL, where I was working on evaluating biologically plausible perturbation-based learning algorithms to train deep networks under the guidance of **Prof Peter Latham** (Gatsby, UCL) and **Tim Lillicrap** (DeepMind). In the past, I've also worked on deep learning-based personality detection from text with **Prof Erik Cambria** (NTU Singapore).
I thoroughly enjoy coding and working on hard algorithmic problems.

Research Experience

January 2022 – Present | **Research Engineer 2, HHMI Janelia Research Campus, Ashburn**
- I am working on meta-learning local plasticity rules in a connectome-constraint deep neural network, as part of the *Funke Lab*.

JAX | Connectomics | Bio-plausible Learning | Neural Nets

December 2021 – September 2020 | **Research Engineer, AutoML Lab, University of Freiburg**
Fundamental and applied research on neural architecture search in the following projects :
- NAS for transformer architectures, Transformers *NASLib*
- MSc. Student Supervision : **MSc. project** (NAS for panoptic segmentation), **MSc. thesis** (NAS+HPO for EEG prediction)

PyTorch | Neural Architecture Search | Transformers

February 2020 – January 2019 | **Research Intern, Gatsby Computational Neuroscience Unit, UCL**
Working on a joint project with **DeepMind** on the scalability of perturbation based biologically plausible learning algorithms for deep neural networks.
- We thoroughly investigate a particular class of perturbation-based learning algorithms, as a candidate for synaptic updates in the brain with Peter Latham and Timothy Lillicrap (DeepMind).

JAX | PyTorch | Bio-plausible Learning | Neural Nets

Publications

Erdos Number : 3 [Yash Mehta – Erik Cambria – Giuseppe Melfi – Paul Erdos]

On the Limitations of Perturbation-Based Methods For Training Deep Networks 2022
Yash Mehta, Naoki Hiratani, Peter Humphreys, Peter Latham, Timothy Lillicrap
arxiv Paper

Stability and Scaling of Node Perturbation Learning 2022
Naoki Hiratani, Yash Mehta, Timothy Lillicrap, Peter Latham
under review (**NeurIPS**) Paper

NAS-Bench-Suite : NAS Evaluation is (Now) Surprisingly Easy 2022
Yash Mehta*, Colin White*, Arber Zela, Arjun Krishnakumar, Guri Zabergja, Shakiba Moradian, Kaicheng Yu, Mahmoud Safari, Frank Hutter
International Conference on Learning Representations (**ICLR**) Paper

Towards Biologically Plausible Convolutional Networks 2021
Roman Pogodin, Yash Mehta, Timothy Lillicrap, Peter Latham
Neural Information Processing Systems (**NeurIPS**) Paper

Multi-Task Learning for Emotion and Personality Detection 2021
Yang Li, Amir Kazameini, Yash Mehta, Erik Cambria
Neurocomputing | Impact Factor : **5.72** Paper

Up and Down : Modelling Personality with Psycholinguistic Features and Language Models 2020
Yash Mehta*, Samin Fatehi*, Amir Kazameini, Clemens Stachl, Erik Cambria
IEEE International Conference of Data Mining (**ICDM**) Paper

Recent Trends in Deep Learning-Based Personality Detection 2019

Yash Mehta, Navonil Majumder, Alexander Gelbukh, Erik Cambria

AI Review Journal | Springer Nature | Impact Factor : **8.14** | **170+** citations | Paper

Editorial Board Memberships

Managing Guest Editor - Special Issue

Future-Generation Personality Prediction from Digital Footprints

FGCS | Elsevier International Journal | Impact Factor : **7.19**

Brought together an expert editorial team and initiated a collaboration to create a special issue editorial in the Elsevier Future Generation Computer Systems (FGCS) international journal. The other guest editors in the team include **Prof Bjorn Schuller** (Imperial College), **Dr. Clemens Stachl** (Stanford), **Prof Joeseph T Yun** (UIUC) and **Prof Konstantin Markov** (UoAizu).

Industry Experience

August 2019 – June 2019 | **AI Theory Research Intern, Noah's Ark, Huawei R&D UK**

- Worked on neural architecture search (**NAS**) with a Bayesian Optimization Hyperband search strategy for extreme low light image denoising
- Extensive literature review on neural architecture search to understand the recent methods
- Came up with a novel way to combine NAS and compression strategies, which resulted in **8x** lower latency model and initiated a collaboration with the Huawei Moscow team

Neural Architecture Search | Image Denoising | Model Compression | Tensorflow

December 2018 – July 2018 | **Software Development Engineer, Amazon, India**

- Worked on the lyrics re-architecture project in Prime Music on the AWS technology stack
- Lead a team of 6 people in the Global Amazon ML Hackathon to create a scalable automated multimodal **song emotion detection** with word embeddings, deep neural networks and LSTMs won second prize
- Quit this job to pursue academic research

AWS | Datapipelines | Development

Education

2014 - 2018 | Bachelor of Engineering (Honors) in **Computer Science**
Birla Institute of Technology and Science, India

- Institute topper : Design and Analysis of Algorithms
- Institute squash team captain, badminton team vice-captain
- Relevant Coursework : Object Oriented Programming, Probability and Statistics, Data Structures and Algorithms, Advanced Algorithms

Jan'18 - Jul'18 | BSc. Research Thesis @ **SenticTeam**
Nanyang Technology University, Singapore

- Published an extensive literature survey on deep learning-based automated personality detection (**cited 170+ times**).
- Start and managed a collaboration with researchers at Stanford, Iran University to extend our work.

Teaching Assistant

- **Uni Freiburg MSc Course** DL Lab (SS'21), DL (WS'21)
- **CS F211 & F364 BSc Course** Data Structure and Algorithms, Design and Analysis of Algorithms

Interests

- Backpacked solo to the Himalayas, Europe and Eastern Australia
- Timing for 21km - 1hr 46min

References

Peter Latham
Professor, Gatsby, UCL
@ pl@gatsby.ucl.ac.uk

Frank Hutter
Professor, Universität Freiburg
@ frank@uni-freiburg.de

Timothy Lillicrap
Sr. Staff Research Scientist, DeepMind
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