Yash MEHTA
PhD student | Computational Cognitive Science

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EDUCATION

Sept'23 - Present | **Johns Hopkins University,** USA
Cognitive neuroscience, Deep learning, *PhD*

> Interested in applying ideas of cognitive science to help transform AI-based healthcare.

Jan'18 - Jul'18 | **Nanyang Technological University (NTU)**, Singapore
Applied Deep Learning, *Undergraduate research thesis*

> Worked on automated personality prediction from written essays using pre-trained Large Language Models (LLMs), for e.g. BERT, RoBERTa.

Aug'14 - Jul'18 | **Birla Institute of Technology and Science (BITS Pilani)**, India
Computer Science, *Bachelor of Engineering (Honors)*

> *Relevant Coursework* : Parallel Computing, Theory of Computation, Information Retrieval, Data Structures and Algorithms, Advanced Algorithms.
> Varsity squash team captain and Varsity badminton team vice-captain.

RESEARCH EXPERIENCE

Jan 2024
October 2023 | **Harvard Medical School, USA,** Visiting PhD student
SUPERVISOR : Pranav Rajpurkar

> Building knowledge graphs for radiology headCT free text reports from MIMIC for comprehensive radiology report generation.
> Combining LLMs, Retrieval Augmented Generation, knowledge graphs and vector databases.

`Langchain` `Knowlege Graphs` `LLMs`

Sept 2023
January 2022 | **HHMI Janelia Research Campus, USA,** Research Engineer 2
SUPERVISOR : Jan Funke, James Fitzgerald

> Working on meta-learning synaptic plasticity rules in a connectome-constraint artificial neural network in collaboration with **Larry Abbott**'s lab at the Zuckerman Institute, Columbia.
> Working closely with experimental labs to fit our model to actual fly data.

`JAX` `Meta-learning` `Neural Networks`

December 2021
September 2020 | **AutoML Lab Freiburg, GERMANY,** Research Engineer
SUPERVISOR : Frank Hutter

> Worked on developing and benchmarking efficient algorithms for evolving optimal neural network architectures for various computer vision tasks.
> Lead developer of open-source library, *NASLib* for fundamental neural architecture search research.

`PyTorch` `Neural Architecture Search` `Transformers`

July 2020
January 2019 | **Gatsby Computational Neuroscience Unit, UK,** Research Intern
SUPERVISORS : Peter Latham, Tim Lillicrap (**Google DeepMind**)

> *Main Project* : worked on perturbation-based learning rules as candidates for credit assignment in the brain, by investigating their performance on artificial neural networks.
> *Side Project* : Worked on improving the performance of biologically-plausible convolutional networks with a combination of backprop and local Hebbian plasticity.

`JAX` `Bio-plausible Learning` `Neural Networks`

PUBLICATIONS

Erdos Number : 3

MODEL-BASED INFERENCE OF SYNAPTIC PLASTICITY RULES   2023
Yash Mehta, Danil Tyulmankov, Adithya Rajgopalan, Glenn Turner, James Fitzgerald, Jan Funke

`BioRxiv` Paper

An Empirical Investigation of Perturbation-Based Methods to Train Deep Neural Networks ### 2023

Yash Mehta, Naoki Hiratani, Peter Humphreys, Peter Latham, Timothy Lillicrap

`Under review` `⬀ GitHub`

NAS-Bench-Suite : NAS Evaluation is (Now) Surprisingly Easy ### 2022

Yash Mehta*, Colin White*, Arber Zela, Arjun Krishnakumar, Guri Zabergja, Shakiba Moradian, Mahmoud Safari, Frank Hutter

`International Conference on Learning Representations (ICLR)` `⬀ Paper`

Stability and Scaling of Node Perturbation Learning ### 2022

Naoki Hiratani, Yash Mehta, Timothy Lillicrap, Peter Latham

`Neural Information Processing Systems (NeurIPS)` `⬀ 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 ### 2020

Yash Mehta, Navonil Majumder, Alexander Gelbukh, Erik Cambria

`AI Review Journal` `Impact Factor : 12.0` `9,000+ Accesses` `⬀ Paper`

💼 Industry Experience

December 2018 — July 2018	**Amazon, India,** Software Development Engineer > Worked as a full-time software developer as part of the Amazon Prime Music team using the AWS technology stack. > Won **second prize** in the Global Amazon ML Hackathon, leading a team of 6 software developers. Created a prototype for automated emotion detection from songs using LSTMs. > Quit job to pursue academic research. `AWS` `Data Pipelines` `Software Development`

✚ Editorial Board Memberships

Managing Guest Editor - Special Issue 2022

⬀ Future-Generation Personality Prediction from Digital Footprints

`#2 in Computing Systems` `CiteScore : 21.1` `Impact Factor : 7.5`

Organized a successful special issue in the Elsevier international journal, Future Generation Computing Systems (FGCS) on automated personality prediction with Deep Learning. The other guest editors in the team were **Prof Bjorn Schuller** (Imperial College), **Prof Clemens Stachl** (Uni St.Gallen), **Prof Joeseph T Yun** (UIUC) and **Prof Konstantin Markov** (Uni Aizu).

🖥 Teaching Assistant

> **Deep Learning** (WS'21), MSc.Course, Freiburg
> **Deep Learning Lab** (SS'21), MSc.Course, Freiburg
> **Intro to NLP** (SS'18), BSc.Course, NTU Singapore
> **Advanced Algorithms** (SS'17), Bsc.Course, BITS
> **Data Structures & Algo** (WS'17), Bsc.Course, BITS

✚ Interests

> **Teaching** : Took intro ML classes @local high school
> **Videography** : Created "ResearchBridge" video interview series
> **Solo travel** : Backpacked the Himalayas, Europe and Eastern Australia
> **Running** : Half marathon personal best : 1h 46m

❝ References