Yash MEHTA
PhD student | Computational Cognitive Science

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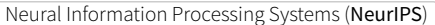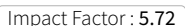
🎓 EDUCATION

Sep'23 - Present

Johns Hopkins University, USA
AI + Healthcare, PhD
> Rotations. Bridge cognitive science and artificial intelligence to improve AI applications in 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

Present
October 2023

Harvard Medical School, USA, Visiting PhD student
LAB : Generalist Medical AI Lab
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
LAB : Computation and Theory Group
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.
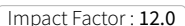> Working closely with experimental labs to fit our model to actual fly data.

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

December 2021
September 2020

University of Freiburg, GERMANY, Research Engineer
LAB : AutoML Machine Learning Lab
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

University College London, UK, Research Intern
LAB : Gatsby Computational Neuroscience Unit
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
2024
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
2024
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

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Peter Latham
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Frank Hutter
Professor, Universität Freiburg
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Timothy Lillicrap
Director of research, DeepMind
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Erik Cambria
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