

# Tejas Shivakumar Kasetty

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## Education

- 2022 - **Université de Montréal, Montreal**, *M.Sc in Computer Science*.  
Present Co-supervised by **Guillaume Lajoie & Dhanya Sridhar** (GPA - 4.15/4.3)  
2014 - 2018 **PES University, Bengaluru**, *B.Tech in Computer Science*.

## Publications

- Under review ***In-context learning and Occam's razor***.  
Eric Elmoznino\*, Tom Marty\*, **Tejas Kasetty**, Leo Gagnon, Sarthak Mittal, Mahan Fathi, Dhanya Sridhar, Guillaume Lajoie
- NeurIPS Workshop 2024 ***Evaluating Interventional Reasoning Capabilities of Large Language Models***.  
**Tejas Kasetty\***, Divyat Mahajan, Gintare Karolina Dziugaite, Alexandre Drouin, Dhanya Sridhar

## Research Experience

- Sept 2024 - **Graduate Student Researcher**, *Mila*, Montreal, Canada.  
Present
  - Part of Guillaume Lajoie's Lab
  - Working on formalizing compositionality and compositional generalization.
- June 2023 - **Research Intern**, *Mila*, Montreal, Canada.  
Aug 2024
  - Analyzed and bench-marked the causal reasoning ability of Large Language Models
  - Linking *In-context learning* (as a meta-learning algorithm) to Occam's razor with preference for simple models.
- May 2017 - **Research Intern**, *Center for Pattern Recognition and Machine Intelligence (CPRMI) Lab*, *PES University*.  
April 2018
  - Worked on Computer Vision projects in the summer and for my undergraduate thesis.
  - It involved using neural networks and other machine learning techniques to solve problems in the field of Face Recognition and Image de-blurring.

## Industry Experience

- May 2023 - **ML Developer Intern**, *Intellisports.Inc*, Montreal, Canada.  
Nov 2023
  - Human Activity Recongition using Intertial Measurement Units(IMU) data.
  - Using deep learning and sequence-modeling approach to accurately recognise the activity and count repetitions.
- Jun 2018 - **Software Development Engineer (Big Data and ML)**, *MiQ*, Bengaluru, India.  
Jan 2020
  - Implemented custom libraries and services with support for various ML algorithms and functionalities to work on big-data using Spark.
  - It helped analysts and data-scientists scale-up and automate their data pipelines and train complex machine learning models on big-data.
- Jan 2018 - **Software Development Intern (Full stack)**, *MiQ*, Bengaluru, India.  
July 2018
  - Developed a web application where users can easily create, run and even schedule workflows.
  - Refactored the back-end from monolithic to a micro-service architecture.
  - Migrated the service to Kubernetes for fast deployment and release. It also helped easily scale-up and scale-down the service based on traffic and other requirements.

## Other Projects

- Jan 2023 - **Memory Capacity and Robustness in RNNs**, *Mila*.  
April 2023
  - Studying the dynamics in RNNs to better understand its capacity and robustness to accurately store/retrieve information.
  - Used Hopfield networks to store and recall information emulating the small-world network connectivity seen in the neocortex, which is hypothesized to be the key factor for high capacity.

- Jan 2023 - **Quick-Recipe: Knowledge Extraction from cooking videos**, *UdeM*.  
 Present
  - o Experimenting with a multi-model approach (text & video) to effectively extract relevant information from cooking videos.
  - o Experimenting with TSM models to extract object & action knowledge from the video clips.
  - o Using attention mechanism for text-to-video temporal grounding.
- Aug 2022 - **NHL Analytics**, *UdeM*.  
 Dec 2022
  - o Built an end-to-end data pipeline on *National Hockey League (NHL)* data.
  - o Built a tool to easily query and visualize play-by-play data with important statistics on any ice-hockey game played from 2018-2021.
  - o Built an ensemble model to make (shot/miss/goal) predictions on a play during a game.
  - o Deployed an web-application that gives real-time predictions with key-insights and statistics on a live NHL game.
- Dec 2017 - **Enhancement of Degraded CCTV footage for Forensic Analysis**, *CPRMI Lab*.  
 May 2018
  - o Implemented various image processing techniques like adaptive histogram equalization, gamma correction and interactive functionalities to reduce noise and improve the quality of images obtained from a CCTV. footage.

## Relevant Skills

- Languages Python, Matlab, Scala, Java, C, C++, L<sup>A</sup>T<sub>E</sub>X
- Frameworks PyTorch, PyTorch Lightning, Hydra, TensorFlow, Spark, Scikit-learn, Numpy, Pandas  
 & Libraries
- Utilities Git, Jupyter, Databricks and Qubole Notebooks
- Communication English (proficient)

## Relevant Courses

- Online Introduction to Neuroscience (MIT Open Courseware)
- Undergrad Linear Algebra, Calculus, Probability and Statistics, Data Structures and Algorithms, Digital Image Processing.
- Graduate Foundations of Machine Learning, Learning Representations (Deep Learning), Dynamical Systems

## Honors and Awards

- 2019 Recipient of **Best Newcomer Award**, *MiQ*, Bengaluru, India.

## Extra Curriculars

- Sept 2023 - **Student Affairs Committee Member (Content Manager)**, *UNIQUE, Montreal*.  
 Sept 2024 Part of student-run committee within the Unifying Neuroscience and AI - Quebec (UNIQUE) research cluster designed to support and empower students working at the intersection of neuroscience and AI within Quebec
- Feb 2023 - **Organizing USS 2023 (Volunteer)**, *UNIQUE, Montreal*.  
 June 2023 I have volunteered as an organizer for UNIQUE Student Symposium 2023. A platform for students doing research in neuroscience and AI to showcase their work. I was responsible for handling the logistics of the event.
- June 2019 **World Environment Day (Volunteer)**, *Rotaract, MiQ*.  
 I volunteered in an event organized by Rotaract to spread awareness of climate change and inform the public on proper waste management. We planted 500 trees in and around the office campus in Bengaluru.
- 2014 - 2017 **PES University Football Team**.  
 I was part of the university football team and represented the university in multiple tournaments.