

Abhinav Moudgil

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Education

Concordia University, Mila - Quebec AI Institute

Ph.D. in Computer Science (GPA 4.22/4.3)

Supported by FRQNT and Federick Lowy Scholars Fellowship

Advised by Eugene Belilovsky

Sep 2021 - Present

IIIT Hyderabad

B.Tech. and MS in Electronics and Communication Engineering (GPA 8.07/10)

MS Thesis: "Extending Visual Object Tracking for Long Time Horizons" [🔗](#)

2013 - 2019

Interests

Compute-efficient frontier models/algorithms, learned optimization, generalization

Experience

Meta Superintelligence Labs (FAIR)

Contingent Worker (part-time 50%) with Jakob Foerster and Yoram Bachrach

- Contributed to an upcoming flagship model by Meta TBD Lab, leading to non-trivial improvements in coding and multimodal understanding.

- Developed diverse machine learning tasks for a large-scale benchmark testing LLM agentic workflows for AI research.

Aug 2024 - Dec 2024

Apple MLR

Research Intern with Federico Danieli, Pau Rodríguez and Luca Zappella

- Developed a recipe to distill quadratic attention-based Transformers to sub-quadratic SSM-based Mamba models (Under review).

- Contributed to a project on understanding input selectivity in Mamba (ICML 2025).

Apr 2024 - Sep 2024

Georgia Institute of Technology

Visiting Researcher with Devi Parikh and Dhruv Batra

- Developed scene- and object-aware transformer for vision-and-language navigation (NeurIPS 2021).

- Worked on building robust VQA models with Contrastive Learning (ICCV 2021).

Jan 2020 - Aug 2021

Stanford University

Research Intern with Noah D. Goodman

Extended and reproduced results of the paper "A computational model of linguistic humor in puns" (Kao et al., CogSci 2015) to recognize and rate puns with a novel probabilistic model.

Sep 2018 - Dec 2018

University of California, San Diego

Visiting Scholar with Sicun Gao

Worked on sample efficient Reinforcement Learning algorithms for Atari games by learning shared action embeddings.

May 2018 - Aug 2018

Google Summer of Code, CERN

Student Developer with Sergei Glyezer, Lorenzo Moneta and Omar Zapata
Developed a new pipeline from scratch in C++ for unsupervised feature extraction methods in TMVA, an open source project by CERN SFT.
Apr 2016 - Sep 2016

Selected Publications

Celo2: Towards Learned Optimization Free Lunch [↗](#)
Abhinav Moudgil, Boris Knyazev, Eugene Belilovsky
International Conference on Learning Representations (ICLR), 2026

Celo: Training Versatile Learned Optimizers on a Compute Diet [↗](#)
Abhinav Moudgil, Boris Knyazev, Guillaume Lajoie, Eugene Belilovsky
Transactions on Machine Learning Research (TMLR), 2025
Journal-to-Conference Certification (Top 10%), presentation at ICLR 2026

Attention to Mamba: A Recipe for Cross-Architecture Distillation [↗](#)
Abhinav Moudgil, Ningyuan Teresa Huang, Eeshan Gunesh Dhekane, Pau Rodriguez, Aswathy Balagopalan, Luca Zappella, Federico Danieli

Accelerating Training with Neuron Interaction and Nowcasting Networks [↗](#)
Boris Knyazev, **Abhinav Moudgil**, Guillaume Lajoie, Eugene Belilovsky, Simon Lacoste
International Conference on Learning Representations (ICLR), 2025

Towards Scaling Difference Target Propagation by Learning Backprop Targets [↗](#)
Maxence Ernoult, **Abhinav Moudgil***, Fabrice Normandin*, Sean Spinney, Eugene Belilovsky, Irina Rish, Blake Richards, Yoshua Bengio
International Conference on Machine Learning (ICML), 2022

SOAT: A Scene- and Object-Aware Transformer for Vision-and-Language Navigation [↗](#)
Abhinav Moudgil, Arjun Majumdar, Harsh Agrawal, Stefan Lee, Dhruv Batra
Neural Information Processing Systems (NeurIPS), 2021

Long-Term Visual Object Tracking Benchmark [↗](#)
Abhinav Moudgil, Vineet Gandhi
Asian Conference on Computer Vision (ACCV), 2018
Oral Presentation (Top 4.6%)

Papers Reproduced

Held et al., Learning to Track at 100 FPS with Deep Regression Networks, *ECCV 2016*
[github.com/amoudgl/pygoturn]

Kao et al., A Computational Model of Linguistic Humor in Puns, *CogSci 2016*
[github.com/amoudgl/pun-model]

Service

Outstanding Reviewer
ICML 2022

Teaching Assistant
COMP 691: Deep Learning, Concordia University, *Winter 2022*
CSE 471: Statistical Methods in AI, IIIT-H, *Spring 2017*
ISC 201: Science I, IIIT-H, *Fall 2015*