

# Hendrik T. Mayer

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973-722-1133 :: htmayer@umich.edu

## EDUCATION

### **University of Michigan – Ann Arbor**

*PhD Student in Computer Science and Engineering, GPA: 4.0/4.0*

Ann Arbor, MI

Expected August 2028

- **Advisor:** Danai Koutra - Graph Exploration and Mining at Scale (GEMS) Lab

### **Massachusetts Institute of Technology (MIT)**

*Master of Engineering in Computer Science, GPA: 5.0/5.0*

Cambridge, MA

June 2024

- **Thesis Title:** Irreversible Actions in Assistance Games with a Dynamic Goal
- **Relevant Graduate Level Coursework:** Reinforcement Learning: Foundations and Methods; Values and AI: Accidents, Alignment, and Misuse; Advanced Complexity Theory; Probability;

*Bachelor of Science, Computer Science GPA: 4.7/5.0, Overall GPA: 4.6/5.0*

Cambridge, MA

May 2023

- Major in Computer Science and Engineering; Major in Physics; Minor in Mathematics
- **Relevant Coursework:** Machine Learning; Artificial Intelligence; Design and Analysis of Algorithms; Theory of Computation; Elements of Software Construction; Algebraic Combinatorics; Algebra I; Real Analysis; Quantum Physics II; Relativity;

## PUBLICATION

Markus Bläser, **Hendrik Mayer**, Devansh Shringi. On the Multilinear Complexity of Associative Algebras. International Symposium on Theoretical Aspects of Computer Science (STACS) 2023: LIPIcs 254, pages 12:1-12:18.

## EXPERIENCE

### **Graduate Student Researcher**

*University of Michigan – Ann Arbor, AI Lab*

Ann Arbor, MI

May 2025 -

- Conducting PhD research with Prof. Danai Koutra on Graph Machine Learning
- Researching node-level performance trends of various Graph Neural Network (GNN) architectures
- Investigating the interplay of features such as degree and local homophily related to performance

### **Graduate Student Instructor**

*University of Michigan – Ann Arbor, CSE Department*

Ann Arbor, MI

August 2025 - December 2025

- Teaching Assistant for EECS 492 Introduction to Artificial Intelligence
- Responsibilities include teaching discussion sections, developing course materials, holding office hours, performing administrative tasks

### **Graduate Research Assistant**

Ann Arbor, MI

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*University of Michigan – Ann Arbor, AI Lab*

August 2024 - April 2025

- Graduate Student Research Assistantship with Prof. Satinder Singh and Prof. Richard Lewis
- Used modern AI model in pursuit of improved methods for sequential decision-making problems
- Preliminary research on training a transformer with an offline reinforcement learning training dataset to learn an in-context reinforcement learning algorithm which generates higher return than any of the algorithms used to generate the training dataset

## Graduate Research Assistant

*Massachusetts Institute of Technology, CSAIL*

Cambridge, MA

June 2023 - January 2024

- Funded for a Graduate Research Assistantship with Professor Dylan Hadfield-Menell
- Focused on aligning the behavior of AI agents to human interests and values
- Analyzed the frequency of irreversible actions taken by AI agents in human-AI assistance games with a time-varying goal

## Research Assistant

*Saarland University, Algebraic Complexity Theory Research*

Saarbrücken, Germany

May 2022 - August 2022

- Researched at Saarland University with Professor Markus Bläser
- Systematically studied the multilinear complexity of d-fold multiplication in associative algebras
- Generalized the Alder-Strassen lower bound to a multilinear complexity setting as part of a team
- Constructed proofs and wrote an academic paper with collaborators

## Undergraduate Researcher

*Massachusetts Institute of Technology, Fletcher Lab*

Cambridge, MA

June 2021 - May 2022

- Conducted Ultracold Atomic Physics research with Professor Richard Fletcher
- Designed and constructed electronics and optics pertinent to an ultracold atomic gas experiment
- Built, modified, and tested an insulated-gate bipolar transistor (IGBT) system, which electronically controls high-current coils that cool atoms to nanokelvin temperatures

## ACTIVITIES

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### MIT Varsity Men's Soccer Team

*Midfielder - 11 goals and 59 appearances in 4 seasons*

Cambridge, MA

August 2019 - November 2023

## SKILLS / OTHER

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**Software:** Python, TypeScript/JavaScript, PyTorch, LaTeX, OpenAI Gym, Ray RLlib, MATLAB

**Languages:** German (Advanced: C1 Level, earned language qualification for German universities)

**Citizenships:** United States (Primary) and Germany (Secondary)