Emanuel Tewolde

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SELECTED EDUCATION

Carnegie Mellon University   Aug. 2022 – ca. Aug. 2027
PhD in Computer Science   Pittsburgh, USA

- Foundations of Cooperative AI Lab (FOCAL),   Advisor: Vincent Conitzer
- Research Focus: Algorithmic Game Theory for AI agents
- Course Focus: Algorithmic Game Theory, Reinforcement Learning

Imperial College London   Oct. 2020 – Oct. 2021
MSc in Pure Mathematics   London, United Kingdom

- GPA (UK): 83.8%,   Distinction $\rightarrow$ Ranked 1st out of 28 Graduates
- Focus: Geometry & Topology, Game Theory, Machine Learning

Technical University (TU) of Darmstadt   Oct. 2016 – Oct. 2019
BSc in Mathematics with a minor in Economics   Darmstadt, Germany

- GPA (Germany): 1,27 $\rightarrow$ Top 5% of Graduates
- Focus: Mathematical Optimization

RESEARCH EXPERIENCE

- Research Assistance, On Cooperative AI, Carnegie Mellon University   Aug. 2022 – ca. Aug. 2027
- Research Visits, On Cooperative AI, University of Oxford   Summer 2022, 2023 & 2024
- Research Internship, On Deep Learning for Energy Distribution Networks, Fraunhofer Institute
  for Energy Economics and Energy System Technology (Fraunhofer IEE)   Apr. 2020 – Jul. 2020
- Research Assistance, On Machine Learning for Wind Turbine Maintenance, Fraunhofer IEE   May 2019 – Oct. 2019

PUBLICATIONS

$(\alpha\beta)$: alphabetical ordering, * : equal contribution

- Emanuel Tewolde, Brian Hu Zhang, Caspar Oesterheld, Tuomas Sandholm, and Vincent Conitzer. Computing Game Symmetries and Equilibria That Respect Them. In *Association for the Advancement of Artificial Intelligence (AAAI)*, **Oral**, 2025.
- Ratip Emin Berker, Emanuel Tewolde, Ioannis Anagnostides, Tuomas Sandholm, Vincent Conitzer. The Value of Recall in Extensive-Form Games. In *Association for the Advancement of Artificial Intelligence (AAAI)*, **Oral**, 2025.
- Emanuel Tewolde, Brian Hu Zhang, Caspar Oesterheld, Manolis Zampetakis, Tuomas Sandholm, Paul W. Goldberg, and Vincent Conitzer. Imperfect-Recall Games: Equilibrium Concepts and Their Complexity. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2024.
- Emanuel Tewolde and Vincent Conitzer. Game Transformations That Preserve Nash Equilibria or Best-Response Sets. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2024.
- $(\alpha\beta)$ Vincent Conitzer, Rachel Freedman, Jobst Heitzig, Wesley H. Holliday, Bob M. Jacobs, Nathan Lambert, Milan Mossé, Eric Pacuit, Stuart Russell, Hailey Schoelkopf, Emanuel Tewolde, and William S. Zwicker. Social Choice Should Guide AI Alignment in Dealing with Diverse Human Feedback. In *International Conference on Machine Learning (ICML) – Position Paper Track*, 2024.
- Emanuel Tewolde, Caspar Oesterheld, Vincent Conitzer, and Paul Goldberg. The Computational Complexity of Single-Player Imperfect-Recall Games. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2023.

SELECTED SCHOLARSHIPS AND GRANTS

- PhD Fellowship, Cooperative AI Foundation .... 2025 – present
- Research Grant, Cooperative AI Foundation, $6750 2022
- Scholarship, German Scholarship Foundation (Studienstift. des Deutschen Volkes), ∼22,000€ ... 2020 – 2022
- Scholarship, Hessen-Wisconsin Exchange Program, ∼$10,000 2018

TEACHING EXPERIENCE

- Graduate Teaching Assistant, Carnegie Mellon University 2024
    - Sole TA for Advanced Topics in Machine Learning and Game Theory
- Instructor for new Teaching Assistants, TU of Darmstadt .... 2019 – 2020
    - Taught and supervised 5 – 10 new TAs per semester for the mathematics department
- Undergraduate Teaching Assistant, TU of Darmstadt .... 2017 – 2019
    - Introduction to Algebra, Analysis 2, Analysis 1

INVITED TALKS

- FAR.AI .... Nov. 2024
- Guest Lecture for 17-759 Adv. Top. in Machine Learning and Game Theory, Carnegie Mellon University ... Nov. 2024
- Foundation and Language Model (FLAME) Center, Carnegie Mellon University .... Sep. 2024
- Algorithmic Game Theory Seminar, University of Oxford .... Jun. 2024
- Google DeepMind London .... May 2024
- Fei Fang's AI and Social Good Lab, Carnegie Mellon University .... Apr. 2024

RELEVANT SKILLS

Software:	Python ★★★★☆, Matlab ★★☆☆☆, SQL ★★☆☆☆, Microsoft Office ★★★★☆
General Libraries:	PyTorch ★★★★☆, TensorFlow ★★★☆☆, Scikit-learn ★★★★☆
Area-Specific Libraries:	NashPy ★★★★☆, Gym ★★★☆☆, Gambit ★★☆☆☆, DGL ★★☆☆☆
Languages:	German ★★★★★, English ★★★★☆, Amharic ★★☆☆☆

FURTHER HIGHER EDUCATION

- Multiple Courses of the MSc in International Economics & Economic Policy at Goethe University Frankfurt ... 2019 – 2020
- MSc Specialization in Mathematical Optimization at the Technical University of Darmstadt .... 2019 – 2020
- Exchange Semester at the University of Wisconsin-Milwaukee 2018
- Taking a Mathematics Course at Goethe University Frankfurt as a High School Student 2015

SELECTED VOLUNTEERING

- Mentoring of First-Year PhD students at Carnegie Mellon University .... 2023 – present
- Academic Representative for Pure Mathematics at Imperial College London .... 2020 – 2021
- Coordinating Outreach Events for the International Office at the TU of Darmstadt .... 2019 – 2020
- Hessen-Student-Ambassador in Milwaukee 2018