

MICHAL SHLAPENTOKH-ROTHMAN

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RESEARCH INTERESTS

Efficient adaptation of vision and language tools for downstream tasks.

Keywords: vision-language, transfer learning, multi-modal, foundation models, large language models

EDUCATION

University of Illinois at Urbana-Champaign

PhD Candidate in Computer Science

Advisors: Derek Hoiem, Yuxiong Wang

Urbana, IL

Aug. 2020- Dec. 2025 (Expected)

Massachusetts Institute of Technology

Masters of Engineering in Computer Science and Electrical Engineering

Thesis Title: Unifying Threat Data with Public Knowledge

Cambridge, MA

Sept 2019 - May 2020

Massachusetts Institute of Technology

Bachelor of Science in Computer Science and Engineering

Research Advisors: Erik Hemberg, Una-May O'Reilly

Cambridge, MA

Sept 2015 - May 2019

RESEARCH EXPERIENCE

University of Illinois at Urbana-Champaign

Graduate Researcher

Combining foundation models for more efficient and effective learning

Urbana, IL

Fall 2020-Present

Amazon

Applied Science Intern, Manager: Greg Hager, Mentor: Mohsen Malmir

Category discovery with unlabeled data

Virtual

May 2022- Aug 2022

Amazon

Applied Science Intern, Manager: Greg Hager, Mentor: Ejaz Ahmed

Transfer learning with limited labels

Virtual

May 2021 - Aug 2021

Computer Science and Artificial Intelligence Laboratory, ALFA Lab

Graduate Researcher

Evolutionary algorithms for network security

Cambridge, MA

Aug 2019-May 2019

Computer Science and Artificial Intelligence Laboratory, ALFA Lab

Advanced Undergraduate Researcher

Attack simulations for robust network configurations

Cambridge, MA

Aug 2018-May 2019

PUBLICATIONS AND PREPRINTS

- [1] **M. Shlapentokh-Rothman**, Y.-X. Wang, and D. Hoiem, “Can we generate visual programs without prompting LLMs?” *In Submission*, 2024.
- [2] **M. Shlapentokh-Rothman***, A. Blume*, Y. Xiao, Y. Wu, S. TV, H. Tao, J. Y. Lee, W. Torres, Y.-X. Wang, and D. Hoiem, “Region-based representations revisited,” in *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
- [3] H. Tao, S. TV, **M. Shlapentokh-Rothman**, H. Ji, and D. Hoiem, “Webwise: Web interface control and sequential exploration with large language models,” in *NAACL (Findings)*, 2024.
- [4] A. Zhou, K. Yan, **M. Shlapentokh-Rothman**, H. Wang, and Y.-X. Wang, “Language agent tree search unifies reasoning acting and planning in language models,” in *International Conference on Machine Learning (ICML)*, 2024.

- [5] D. Hoiem, T. Gupta, Z. Li, and **M. Shlapentokh-Rothman**, “Learning curves for analysis of deep networks,” in *International Conference on Machine Learning (ICML)*, 2021.
- [6] **M. Shlapentokh-Rothman**, J. Kelly, A. Baral, E. Hemberg, and U.-M. O’Reilly, “Coevolutionary modeling of cyber attack patterns and mitigations using public datasets,” in *Genetic and Evolutionary Computation Conference*, 2021.
- [7] E. Hemberg, J. Kelly, **M. Shlapentokh-Rothman**, B. Reinstadler, K. Xu, N. Rutar, and U.-M. O’Reilly, “Linking threat tactics, techniques, and patterns with defensive weaknesses, vulnerabilities and affected platform configurations for cyber hunting,” *arXiv preprint arXiv:2010.00533*, 2020.
- [8] **M. Shlapentokh-Rothman**, E. Hemberg, and U.-M. O’Reilly, “Securing the software defined perimeter with evolutionary co-optimization,” in *Genetic and Evolutionary Computation Conference Companion*, 2020.

TEACHING EXPERIENCE

Computational Photography UIUC CS 445, Graduate TA	Spring 2021, 2023
Artificial Intelligence UIUC CS 440, Graduate TA	Fall 2020

SERVICE

Reviewer CVPR, NeurIPS, ICLR, ICML	2022-Present
UIUC Vision Cluster Student Administrator	2022-Present
UIUC Vision Mini-Conference Co-Organizer	April 2023