

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- Aug. 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***, 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.
- [2] 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*, 2024.
- [3] 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.
- [4] D. Hoiem, T. Gupta, Z. Li, and **M. Shlapentokh-Rothman**, "Learning curves for analysis of deep networks," in *Proceedings of the 38th International Conference on Machine Learning (ICML)*, 2021.

- [5] **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 *Proceedings of the Genetic and Evolutionary Computation Conference*, 2021.
- [6] 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.
- [7] **M. Shlapentokh-Rothman**, E. Hemberg, and U.-M. O'Reilly, "Securing the software defined perimeter with evolutionary co-optimization," in *Proceedings of the 2020 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 (2022, 2023), NeurIPS (2023), ICLR (2023), ICML (2024)

2022-Present

UIUC Vision Cluster, Student Administrator

2022-Present

UIUC Vision Mini-Conference, Co-Organizer

April 2023