Michal Shlapentokh-Rothman

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Research Interests

Adaptable and efficient vision-language agents with limited user input
Keywords: vision-language, transfer learning, multi-modal, foundation models, large language models

Education

University of Illinois at Urbana-Champaign — Urbana, IL
PhD Candidate in Computer Science — *Aug. 2020- Dec. 2025 (Expected)*
Advisors: Derek Hoiem, Yuxiong Wang

Massachusetts Institute of Technology — Cambridge, MA
Masters of Engineering in Computer Science and Electrical Engineering — *Sept 2019 - May 2020*
Thesis Title: Unifying Threat Data with Public Knowledge

Massachusetts Institute of Technology — Cambridge, MA
Bachelor of Science in Computer Science and Engineering — *Sept 2015 - May 2019*
Research Advisors: Erik Hemberg, Una-May O'Reilly

Research Experience

University of Illinois at Urbana-Champaign — Urbana, IL
Graduate Researcher — *Fall 2020-Present*
Combining foundation models for more efficient and effective learning

Amazon — Virtual
Applied Science Intern, Manager: Greg Hager, Mentor: Mohsen Malmir — *May 2022- Aug 2022*
Category discovery with unlabeled data

Amazon — Virtual
Applied Science Intern, Manager: Greg Hager, Mentor: Ejaz Ahmed — *May 2021 - Aug 2021*
Transfer learning with limited labels

Computer Science and Artificial Intelligence Laboratory, ALFA Lab — Cambridge, MA
Graduate Researcher — *Aug 2019-May 2019*
Evolutionary algorithms for network security

Computer Science and Artifical Intelligence Laboratory, ALFA Lab — Cambridge, MA
Advanced Undergraduate Researcher — *Aug 2018-May 2019*
Attack simulations for robust network configurations

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 *CVPR*, 2024.

[3] H. Tao, S. T V, **M. Shlapentokh-Rothman**, T. Gupta, H. Ji, and D. Hoiem, "WebWISE: Unlocking web interface control for LLMs via sequential exploration," in *NAACL (Findings)*, Jun. 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 *ICML*, 2024.

[5] D. Hoiem, T. Gupta, Z. Li, and **M. Shlapentokh-Rothman**, "Learning curves for analysis of deep networks," in *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