

# MICHAL SHLAPENTOKH-ROTHMAN

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## RESEARCH INTERESTS

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Understanding and effective usage of large-scale vision-language models for multi-modal tasks.

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

## EDUCATION

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### University of Illinois at Urbana-Champaign

*PhD Candidate in Computer Science*

Advisors: Derek Hoiem, Yuxiong Wang

Urbana, IL

*Fall 2020-Present*

### 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

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### University of Illinois at Urbana-Champaign

*Graduate Researcher*

Augmenting vision-language models with large language models

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

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- [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

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**Computational Photography**, UIUC CS 445, Graduate TA

Spring 2021, 2023

**Artificial Intelligence**, UIUC CS 440, Graduate TA

Fall 2020

## SERVICE

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**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