Michal Shlapentokh-Rothman

michal5@illinois.edu   michalmsr.web.illinois.edu   252-327-3606

Research Interests

Understanding and effective usage of large-scale vision-language models for multi-modal tasks.
Keywords: vision-language, transfer learning, multi-modal, foundation models

Education

University of Illinois at Urbana-Champaign   Urbana, IL
PhD Candidate in Computer Science   *Fall 2020-Present*
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*
Augmenting vision-language models with large language models

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***, A. Blume*, Y. Xiao, Y. Wu, S. TV, H. Tao, J. Y. Lee, W. Torres, Y.-X. Wang, and D. Hoiem, "Region representations revisited," *In Submission*, 2023.

[2] H. Tao, S. TV, **M. Shlapentokh-Rothman**, D. Hoiem, and H. Ji, "Webwise: Web interface control and sequential exploration with large language models," *arXiv preprint arXiv:2310.16042*, 2023.

[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," *arXiv preprint arXiv:2310.04406*, 2023.

[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*, 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.

INDUSTRY EXPERIENCE

Capital One, Data Engineering Intern, New York, NY   June 2019 - Aug 2019
Capital One, Software Engineering Intern, New York, NY   June 2018 - Aug 2018

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), NeurIPS (2023), ICLR (2023)   2022-Present
UIUC Vision Cluster, Student Administrator   2022-Present
UIUC Vision Mini-Conference, Co-Organizer   April 2023