Mahmood Sharif

SENIOR LECTURER

Tel Aviv University

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Education _

Carnegie Mellon University

Ph.D. IN ELECTRICAL AND COMPUTER ENGINEERING

Sep/2014 - Nov/2019

- Dissertation: "Practical Inference-Time Attacks Against Machine-Learning Systems and a Defense Against Them."
- Committee: Lujo Bauer (co-chair), Nicolas Christin (co-chair), Matt Fredrikson, and Michael K. Reiter.

University of Haifa

M.Sc. in Computer Science

Oct/2010 - Nov/2013

- Graduated summa cum laude.
- Dissertation: "Privacy Preserving Key Generation and Authentication from Face Images."
- Committee: Margarita Osadchy (chair), Orr Dunkelman, and Moni Naor.

University of Haifa

B.Sc. IN COMPUTER SCIENCE

Feb/2007 - Sep/2010

• Via the "Etgar" program, a prestigious program for high-school students, offering a university degree one year after graduating from high-school. Headed by Gad Landau.

Professional Experience _____

2021-pres.	Senior Lecturer, School of Computer Science, Tel Aviv University.
2020-pres.	Adjunct Faculty Member, Software and Societal Systems Department (S3D), Carnegie Mellon University.
2021-2023	Affiliated Researcher, VMware Research Group.
2020-2021	Postdoctoral Researcher, VMware Research Group.
2020-2021	Visiting Lecturer, School of Computer Science, Tel Aviv University.
2020-2021	Adjunct Research Fellow, CyLab Security and Privacy Institute, Carnegie Mellon University.
2019-2020	Principal Research Engineer, NortonLifeLock Research Group (previously Symantec Research Labs).
2018	Research Intern, Symantec Research Labs.

Honors and Awards _____

2023	Intel Rising Star Award for Early-Career Faculty Members, Intel
2021	Israeli Council for Higher Education's (CHE) Maof prize for excellent young faculty, CHE
2018	CyLab Presidential Fellowship at Carnegie Mellon University , Carnegie Mellon University
2018	Student travel grant to join CVPRW, CVPR
2018	Symantec Research Labs Fellowship, Symantec
2018	Student travel grant to join NDSS, NDSS
2017	Student travel grant to join the C3E Workshop, C3E
2017	Selected to join the French-American Doctoral Exchange program, French Embassy
2017	Finalist of the Qualcomm Innovation Fellowship, Qualcomm
2017	Finalist of Symantec Research Labs Fellowship, Symantec
2016	CyLab Presidential Fellowship at Carnegie Mellon University , Carnegie Mellon University

- 2014 Carnegie Institute of Technology Dean's Tuition Fellowship, Carnegie Mellon University
- 2014 Recipient of the Uri N. Peled memorial prize, University of Haifa
- 2013 First place in Startup Weekend, Startup Weekend, Haifa

Student travel grant to join ACM CCS, CCS

2016

- 2011 Recipient of the Akavia scholarship, University of Haifa
- 2011 Recipient of the Graduate Studies Authority's scholarship, Graduate Studies Authority

Publications __

REFERED CONFERENCE PUBLICATIONS

- K. Lucas, W. Lin, L. Bauer, M. K. Reiter, **M. Sharif**. "Training Robust ML-based Raw-Binary Malware Detectors in Hours, not Months." Conference on Computer and Communications Security (CCS). 2024. Acceptance rate: TBA. To appear.
- Y. Sawaya, S. Lu, T. Isohara, **M. Sharif**. "A High Coverage Cybersecurity Scale Predictive of User Behavior." USENIX Security Symposium. 2024. Acceptance rate: TBA. To appear.
- M. Ben-Tov, N. Frost, D. Deutch, **M. Sharif**. "CaFA: Cost-aware, Feasible Attacks With Database Constraints Against Neural Tabular Classifiers." IEEE Security and Privacy (S&P). 2024. Acceptance rate: 18%.
- M. Sharif, P. Datta, A. Riddle, K. Westfall, A. Bates, V. Ganti, M. Lentz, D. Ott. "DrSec: Flexible Distributed Representations for Efficient Endpoint Security." IEEE Security and Privacy (S&P). 2024. Acceptance rate: 18%.
- W. Lin, K. Lucas, N. Eyal, L. Bauer, M. K. Reiter, **M. Sharif**. "Group-based Robustness: A General Framework for Customized Robustness in the Real World." Network and Distributed System Security Symposium (NDSS). 2024. Acceptance rate: 20%.
- A. Cohen, **M. Sharif**. "Accessorize in the Dark: A Security Analysis of Near-Infrared Face Recognition." European Symposium on Research in Computer Security (ESORICS). 2023. Acceptance rate: 19%.
- K. Lucas, W. Lin, S. Pai, L. Bauer, M. K. Reiter, **M. Sharif**. "Adversarial Training for Raw-Binary Malware Classifier." USENIX Security Symposium. 2023. Acceptance rate: 29%
- H. Wu, C. Barrett, **M. Sharif**, N. Narodytska, G. Singh. "Scalable Verification of GNN-based Job Schedulers." International Conference on Object-Oriented Programming, Systems, Languages and Applications (OOPSLA). 2022. Acceptance rate: 31%. Also appeared at Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS). 2022.
- D. Kats, **M. Sharif**. "I Have No Idea What a Social Bot Is: On Users' Perceptions of Social Bots and Ability to Detect Them." International Conference on Human-Agent Interaction (HAI). 2022. Acceptance rate: 39%.
- W. Lin, K. Lucas, L. Bauer, M. K. Reiter, M. Sharif. "Constrained Gradient Descent: Building Strong Adversarial Attacks Against Neural Networks." International Conference on Machine Learning (ICML). 2022. Acceptance rate: 22%.
- K. Lucas, **M. Sharif**, L. Bauer, M. K. Reiter, S. Shintre. "Malware Makeover: Breaking ML-based Static Analysis by Modifying Executable Bytes." Asia Conference on Computer and Communications Security (AsiaCCS). 2021. Acceptance rate: 19%.
- C. Cobb, M. Surbatovich, A. Kawakami, **M. Sharif**, L. Bauer, A. Das, L. Jia. "How Risky Are Real Users' IFTTT Applets?" Symposium on Usable Privacy and Security (SOUPS). 2020. Acceptance rate: 20%.
- **M. Sharif**, K. A. Roundy, M. Dell'Amico, C. Gates, D. Kats, L. Bauer, N. Christin. "A Field Study of Computer-Security Perceptions Using Anti-Virus Customer-Support Chats." CHI Conference on Human Factors in Computing Systems (CHI). 2019. Acceptance rate: 24%.
- **M. Sharif**, J. Urakawa, N. Christin, A. Kubota, A. Yamada. "Predicting Impending Exposure to Malicious Content from User Behavior." Conference on Computer and Communications Security (CCS). 2018. Acceptance rate: 17%.
- W. Melicher, A. Das, **M. Sharif**, L. Bauer, L. Jia. "Riding out DOMsday: Toward Detecting and Preventing DOM Cross-Site Scripting." Network and Distributed System Security Symposium (NDSS). 2018. Acceptance rate: 22%.
- Y. Sawaya, **M. Sharif**, N. Christin, A. Kubota, A. Nakarai, A. Yamada. "Self-Confidence Trumps Knowledge: A Cross-Cultural Study of Security Behavior." CHI Conference on Human Factors in Computing Systems (CHI). 2017. Acceptance rate: 25%. Equal contribution by the first two authors.
- Z. Weinberg, **M. Sharif**, J. Szurdi, N. Christin. "Topics of Controversy: An Empirical Analysis of Web Censorship Lists." Privacy Enhancing Technologies (PETS). 2017. Acceptance rate: 23%.
- **M. Sharif**, S. Bhagavatula, L. Bauer, M. K. Reiter. "Accessorize to a Crime: Real and Stealthy Attacks on State-of-the-Art Face Recognition." Conference on Computer and Communications Security (CCS). 2016. Acceptance rate: 17%.
- W. Melicher, **M. Sharif**, J. Tan, L. Bauer, M. Christodorescu, P. G. Leon. "Do Not) Track Me Sometimes: Users' Contextual Preferences for Web Tracking." Privacy Enhancing Technologies (PETS). 2016. Acceptance rate: 24%.

REFEREED JOURNAL PUBLICATIONS

M. Sharif, S. Bhagavatula, L. Bauer, M. K. Reiter. "A General Framework for Adversarial Examples with Objectives." ACM Transactions on Security and Privacy (TOPS). 2019. Impact factor: 3.0.

REFEREED WORKSHOP PUBLICATIONS

- A. Chakravarthy, N. Narodytska, A. Rathis, M. Vilcu, **M. Sharif**, G. Singh. "Property-Driven Evaluation of RL-Controllers in Self-Driving Datacenters." Workshop on Challenges in Deploying and monitoring Machine Learning Systems (DMML@Neur-IPS). 2022.
- M. Davies, D. Marino, A. Nash, K. A. Roundy, **M. Sharif**, A. Tamersoy. "Training Older Adults to Resist Scams with Fraud Bingo and Scam-Detection Challenges." CHI Workshop on Designing Interactions for the Ageing Populations (CHI EA). 2020.
- J. Tan, M. Sharif, S. Bhagavatula, M. Beckerle, L. Bauer, M. Mazurek. "Comparing Hypothetical and Realistic Privacy Valuations." Workshop on Privacy in the Electronic Society (WPES). 2018. Acceptance rate: 29%.
- **M. Sharif**, L. Bauer, M. K. Reiter. "On the Suitability of L_p-norms for Creating and Preventing Adversarial Examples." Computer Vision and Patter Recognition Workshop (CVPRW). 2018.

BOOKS AND BOOK CHAPTERS

K. Lucas, M. Sharif, L. Bauer, M. K. Reiter, S. Shintre. "Deceiving ML-Based Friend-or-Foe Identification for Executables." Cyber Deception: Techniques, Strategies, and Human Aspects (217-249). 2022.

PRE-PRINTS

M. Sharif, L. Bauer, M. K. Reiter. "n-ML: Mitigating Adversarial Examples via Ensembles of Topologically Manipulated Classifiers." arXiv:1912.09059, 2019.

POSTERS

- Y. Sawaya, T. Isohara, **M. Sharif**. "Toward Accurate Prediction of Security Behavior via Comprehensive Scales." USENIX Security Symposium. 2024.
- Z. Rahmani, N. Shahini, N. Gat, Z. Yun, Y. Jiang, O. Farchy, Y. Harel, V. Chaudhary, **M. Sharif**, E. Ayday. "Privacy-Preserving Collaborative Genomic Research: A Real-Life Deployment and Vision." Privacy Enhancing Technologies (PETS). 2024.
- Y. Sawaya, T. Isohara, **M. Sharif**. "Toward Accurate Prediction of Security Behavior via Comprehensive Scales." Symposium on Usable Privacy and Security (SOUPS). 2022.
- Y. Sawaya, **M. Sharif**, N. Christin, A. Kubota, A. Nakarai, A. Yamada. "Toward a Security Behavior Scale Robust to Linguistic Differences." Symposium on Usable Privacy and Security (SOUPS). 2016.
- O. Dunkelman, M. Osadchy, **M. Sharif**. "Secure Authentication from Facial Attributes with No Privacy Loss." Conference on Computer and Communications Security (CCS). 2013.

Patents _____

APPROVED

- M. Sharif, V. Ganti. "Distributed Representations of Computing Processes and Events." US Patent 17375702. 2023.
- Y. Ben-Itzhak, S. Vargaftik, N. Narodytska, **M. Sharif**. "Efficient Federated Learning of Deep Neural Networks (DNNs) Using Approximation Layers." US Patent 17492457. 2023.
- **M. Sharif**, S. Bhatkar, K. A. Roundy, S. Shintre. "Systems and Methods for Training Malware Classifiers." US Patent 11210397. 2021.
- K. A. Roundy, M. Sharif, M. Dell'Amico, C. Gates, D. Kats, D. Chung. "Discovery of Computer System Incidents to Be Remediated Based on Correlation Between Support Interaction Data and Computer System Telemetry Data." US Patent 11163875. 2021.
- K. A. Roundy, **M. Sharif**, A. Tamersoy. "Systems and Methods for Real-Time Scam Protection on Phones." US Patent 10455085. 2019.

Teaching and Instructing Experience _	

S24	Software Project, Instructor	IAU
S24, S23, S22	Trustworthy Machine Learning, Instructor	TAU
F23, S23, S22	Workshop on Usable Security and Privacy, Instructor	TAU
S17	Network Security, Teaching Assistant	CMU
S16	Secure Software Systems, Teaching Assistant	CMU
F15	Introduction to Information Security, Teaching Assistant	CMU
F14, F11	Introduction to Computer Science, Teaching Assistant	UHaifa
F12, S12, F11	Introduction to Computer Science, Lab Instructor	UHaifa
Mentorin	ng	
CURRENT S	STUDENTS	
2024	Mark Fesenko, M.Sc., SCS	TAU
2024	Abdullah Garra, M.Sc., SCS	TAU
2023	Matan Ben-Tov, Ph.D., SCS (Direct track started on 2024)	TAU
2023	Mohammed Qaiss, M.Sc., SCS (Joint with Eyal Ronen)	TAU
2023	Zebin Yun , M.Sc., SCS (Joint with Eyal Ronen)	TAU
2022	Nadav Gat, M.Sc., SCS	TAU
2022	Ben Shapira, M.Sc., SCS	TAU
2021	Achi-Or Weingarten, M.Sc., SCS (Joint with Eyal Ronen)	WIS
Past Stud	ENTS	
2024	Tsufit Ronen, M.Sc., SCS	TAU
2024	David Tarrab, Summer intern from Columbia University	TAU
2023	Ido Abelman, B.Sc., SCS	TAU
2023	Amit Cohen, M.Sc., SCS	TAU
2023	Alon Leshem, Summer intern from UPitt	TAU
2023	Sagi Polaczek, B.Sc., SCS (Joint with Eyal Ronen)	TAU
2023	Jiahao Yu, Summer intern from Bristol University	TAU
2022	Sarah Lu, Summer intern from MIT	TAU
2022	Zebin Yun, Summer intern from SUSTech	TAU
2021 THESES CO	Nimrod de la Vega, B.Sc., SCS (Joint with Eyal Ronen)	TAU
		TALL
2024	Yuval Asher, M.Sc., IE	TAU
2024 2024	Keane Lucas, Ph.D., ECE Danielle Movsowitz, Ph.D., IE	CMU TAU
2024	Elad Richardson, Ph.D., SCS	TAU
2024	Assaf Morag, M.Sc., IE	TAU
2024	Ofir Bar Tal, M.Sc., SCS	TAU
2023	Adi Kaufman, M.Sc., SCS	TAU
2022	Aviv Engelberg, M.Eng., EE	TAU
2022	Maor Ivgi, Ph.D., SCS	TAU
2022	Elad Segal, M.Sc., SCS	TAU
2022	Uri Shaham, Ph.D., SCS	TAU
PAST MENT		

2019	Max Wolff, High school student (Paper accepted at ICLR TML workshop, 2020)	CMU
2019	Anna Kawakami, Participant in the REUSE program, ISR	CMU
2018	Jihye Choi, M.Sc., ECE	CMU
2017	Siyao Meng, M.Sc., INI	CMU
2017	Alessio Buraggina, Participant in the REUSE program, ISR	CMU
2017	Andrew Zhang, Participant in the REUSE program, ISR	CMU
2016	Truth lyiewuare, Participant in the REUSE program, ISR	CMU
2011	Said Agha, B.Sc., SCS	UHaifa

Service _____

2025

CONFERENCE AND WORKSHOP PROGRAM COMMITTEES

2025, 2024	IEEE Conference on Secure and Trustworthy Machine Learning (SaTML)	
2025,	Privacy Enhancing Technologies Symposium (PETS)	
2023-2021	Privacy Emilancing Technologies Symposium (PETS)	
2024	IEEE Symposium on Security and Privacy (S&P)	
2024	International Joint Conference on Artificial Intelligence (IJCAI)	
2023, 2022	USENIX Security Symposium	
2022	International Conference on Machine Learning (ICML)	
2022	Financial Cryptography and Data Security (FC)	
2020	Workshop on Towards Trustworthy ML (co-located with ICLR)	
2019	Workshop on Cyber Security Experimentation and Test (co-located with USENIX Security)	
2019, 2018	European Workshop on Usable Security (co-located with IEEE EuroS&P)	
2019, 2018	Workshop on NLP for Internet Freedom (co-located with COLING)	
2018	Workshop on Privacy in the Electronic Society (co-located with CCS)	
2018	IEEE Symposium on Security and Privacy (S&P) Student PC	

ACM CHI Conference on Human Factors in Computing Systems (CHI)

2018	IEEE Symposium on Security and Privacy (S&P) Student PC	
INVITED EXTERNAL	Reviewing	
2024	ACM Transactions on Computer-Human Interaction (TOCHI)	
2024	Israel Science Foundation grant proposals	
2024, 2021	ACM CHI Conference on Human Factors in Computing Systems (CHI)	
2024	ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)	
2023	Conference on Neural Information Processing Systems (NeurIPS)	
2023, 2022	IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)	
2022	AAAS Science Advances	
2021-2018	ACM Transactions on Privacy and Security (TOPS)	
2021,	IEEE Symposium on Security and Privacy (S&P)	
2019-2016		
2020, 2019,	Privacy Enhancing Technologies (PETS)	
2016, 2015	Trivacy Elinancing reclinologies (1 E13)	
2020, 2019	IEEE Transactions on Dependable and Secure Computing (TDSC)	
2020, 2018,	USENIX Security Symposium	
2017	OSENIX Security Symposium	
2019, 2017,	ACM Conference on Communication and Computer Security (CCS)	
2016	Acm conference on communication and computer security (CCS)	
2019	IEEE European Symposium on Security and Privacy (EuroS&P)	

Network and Distributed System Security Symposium (NDSS)

2019-2016

2018	ACM CHI Conference on Human Factors in Computing Systems (CHI) Late-Breaking Track
2018	International World Wide Web Conference (WWW)
2018	Symposium on Usable Privacy and Security (SOUPS)
2015	International Journal on Machine Vision and Applications (MVAP)
2014, 2013	IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

Talks_

- "Assessing and Enhancing ML Systems' Integrity in the Real World." AI Week, Tel Aviv University, Jun/2024.
- Moderator of round-table titled "AI and Cybersecurity: Opportunities and Risks." The Tel Aviv Conference. Tel Aviv University. Jun/2024.
- "Assessing and Enhancing ML Systems' Integrity in the Real World." Computer Science Ph.D. Seminar. Ukrainian Catholic University. Jun/2024.
- "The Limitations of AI." Lahav Executive Education Program. Tel Aviv University. Mar/2024.
- "Should We Trust Machine-Learning-based Decisions?" Reason and Decision University-wide Seminar. Tel Aviv University. Mar/2024.
- "Assessing and Enhancing ML Systems' Integrity in the Real World." Intel Labs Seminar. Intel. Jan/2024.
- "Assessing and Enhancing ML Systems' Adversarial Robustness in the Real World." Machine-Learning Seminar. Weizmann Institute of Science. Jun/2023.
- "On Machine-Learning Integrity and Threats to Autonomous Transportation." The Shmeltzer Institute for Smart Transportation. Tel Aviv University. Apr/2023.
- "Assessing Biometric Systems in Adversarial Settings: Limitations and Opportunities." The Center for Cyber Law & Policy. University of Haifa. Mar/2023.
- Invited panelist to "Cybersecurity Education in Israel." Federmann Cyber Security Research Center. Hebrew University of Jerusalem. Jun/2022.
- "Toward Robust Malware Detection and Faithfully Evaluating the Robustness of Neural Networks." Learning Club Seminar. Bar-Ilan University. Jun/2022.
- "Introduction to Adversarial Machine Learning." Cloud InnovWave Overseas Workshop. Huawei. Jun/2022.
- "Introduction to Adversarial Machine Learning." Security Business Unit's Seminar. VMware. Jun/2022.
- Invited panelist in "Annual Privacy Workshop." Faculty of Law. Tel Aviv University. May/2022.
- "Physical-World Attacks on Biometric Systems." Joint Biometric Seminar Series. Michigan State University and University of Haifa. Apr/2022.
- "Physical-World Attacks on Machine Learning." Principles and Tools for Computer Security. Guest lecture. Technion. Jan/2021.
- "The Security of Machine Learning in the Real World." Deep Learning Seminar. Interdisciplinary Center Herzliya. Sep/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." Computer Science Department. University of Haifa. Jul/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." School of Computer Science and Engineering. Hebrew University of Jerusalem. Jul/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." Faculty of Electrical Engineering. Technion. Jul/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." School of Computer Science. Tel Aviv University. Jul/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." VMware Research Group. Herzliya and Palo Alto. Jul/2020.
- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." Department of Industrial Engineering. Tel Aviv University. Jul/2020.

- "The Security of Machine Learning in the Real World and Machine Learning for Personalized Security." Computer Science Department. Bar-Ilan University. Jun/2020.
- "Physical-World Attacks on Machine Learning." Security and Fairness of Deep Learning. Guest lecture. Carnegie Mellon University. Apr/2020.
- "Comparing Hypothetical and Realistic Privacy Valuations." Federal Trade Commission's PrivacyCon. Washington DC. Jun/2019.
- "A Field Study of Computer-Security Perceptions Using Anti-Virus Customer-Support Chats." CHI Conference on Human Factors in Computing Systems. Glasgow. May/2019.
- "Physical-World Attacks on Machine Learning." Security and Fairness of Deep Learning. Guest lecture. Carnegie Mellon University. Apr/2019.
- "Physical-World Attacks on Machine Learning." Ethics and Policy Issues in Computing. Guest lecture. Carnegie Mellon University. Feb/2019.
- "Physical-World Attacks on Machine Learning." Privacy, Policy, Law, and Technology. Guest lecture. Carnegie Mellon University. Nov/2018.
- "Predicting Impending Exposure to Malicious Content from User Behavior." Conference on Computer and Communications Security (CCS). Toronto. Oct/2018.
- Invited panelist in "The Hugh Thompson Show: Artificial Intelligence APJ Style." RSA Asia Pacific & Japan. Singapore. Jul/2018.
- "On the Suitability of L_p-norms for Creating and Preventing Adversarial Examples." Computer Vision and Pattern Recognition Workshop (CVPRW). Salt Lake City. Jun/2018.
- "Predicting Impending Exposure to Malicious Content from User Behavior." CyLab Partners Conference. Carnegie Mellon University. Oct/2018.
- "Physical-World Attacks on Machine Learning." Symantec Research Labs. Symantec. Mountain View. May/2018.
- "Predicting Impending Exposure to Malicious Content from User Behavior." Network Security. Guest lecture. Carnegie Mellon University. Apr/2018.
- "Physical-World Attacks on Machine Learning." Introduction to Information Security. Guest lecture. Carnegie Mellon University. Nov/2017.
- "Physical-World Attacks on Machine Learning." Privacy, Policy, Law, and Technology. Guest lecture. Carnegie Mellon University. Nov/2017.
- "Physical-World Attacks on Machine Learning." CyLab Partners Conference. Carnegie Mellon University. Oct/2017.
- "Physical-World Attacks on Machine Learning." The French-American Doctoral Exchange (FADEx) Program. French Institute for Research in Computer Science and Automation (INRIA). Jun/2017.
- "Self-Confidence Trumps Knowledge: A Cross-Cultural Study of Security Behavior." CHI Conference on Human Factors in Computing Systems. Denver. May/2017.
- "Special Topic: Adversarial Machine Learning." Network Security. Guest lecture. Carnegie Mellon University. Apr/2017.
- "(Do Not) Track Me Sometimes: Users' Contextual Preferences for Web Tracking." Federal Trade Commission's PrivacyCon. Washington DC. Jan/2017.
- "Privacy in the Age of Face and Speech Recognition." Privacy, Policy, Law, and Technology. Guest lecture. Carnegie Mellon University. Dec/2016.