Zander W. Blasingame

zblasingame | zander-blasingame | zblasingame.github.io | blasinzw@clarkson.edu

EDUCATION

Clarkson University   Jun. 2018 - Present
Master of Science and Doctor of Philosophy, Electrical and Computer Engineering
Advisor: Chen Liu

Clarkson University   Aug. 2015 - May 2018
Bachelor of Science, Major in Computer Engineering, Minors in Mathematics and Computer Science

PUBLICATIONS

[1] **Zander W. Blasingame** and Chen Liu. "AdjointDEIS: Efficient Gradients for Diffusion Models". In: *arXiv e-prints*, arXiv:2405.15020 (May 2024), arXiv:2405.15020. arXiv: 2405.15020 [cs.CV].

[2] **Zander W. Blasingame** and Chen Liu. "Fast-DiM: Towards Fast Diffusion Morphs". In: *IEEE Security & Privacy* 22.4 (2024), pp. 103–114. DOI: 10.1109/MSEC.2024.3410112.

[3] **Zander W. Blasingame** and Chen Liu. "Greedy-DiM: Greedy Algorithms for Unreasonably Effective Face Morphs". In: *arXiv e-prints*, arXiv:2404.06025 (Apr. 2024), arXiv:2404.06025. DOI: 10.48550/arXiv.2404.06025. arXiv: 2404.06025 [cs.CV].

[4] **Zander W. Blasingame** and Chen Liu. "Leveraging Diffusion for Strong and High Quality Face Morphing Attacks". In: *IEEE Transactions on Biometrics, Behavior, and Identity Science* 6.1 (2024), pp. 118–131. DOI: 10.1109/TBIOM.2024.3349857.

[5] Richard E. Neddo, **Zander W. Blasingame**, and Chen Liu. "The Impact of Print-and-Scan in Heterogeneous Morph Evaluation Scenarios". In: *arXiv e-prints*, arXiv:2404.06559 (Apr. 2024), arXiv:2404.06559. DOI: 10.48550/arXiv.2404.06559. arXiv: 2404.06559 [cs.CV].

[6] Chutitep Woralert, Chen Liu, and **Zander Blasingame**. "HARD-Lite: A Lightweight Hardware Anomaly Realtime Detection Framework Targeting Ransomware". In: *IEEE Transactions on Circuits and Systems I: Regular Papers* 70.12 (2023), pp. 5036–5047. DOI: 10.1109/TCSI.2023.3299532.

[7] Chutitep Woralert, Chen Liu, **Zander Blasingame**, and Zhiliu Yang. "A Comparison of One-class and Two-class Models for Ransomware Detection via Low-level Hardware Information". In: *2023 Asian Hardware Oriented Security and Trust Symposium (AsianHOST)*. 2023, pp. 1–6. DOI: 10.1109/AsianHOST59942.2023.10409333.

[8] Chutitep Woralert, **Zander Blasingame**, and Chen Liu. "HARD-Lite: A Lightweight Hardware Anomaly Realtime Detection Framework Targeting Ransomware". In: *2022 Asian Hardware Oriented Security and Trust Symposium (AsianHOST)* (2022).

[9] **Zander Blasingame** and Chen Liu. "Leveraging Adversarial Learning for the Detection of Morphing Attacks". In: *2021 IEEE International Joint Conference on Biometrics (IJCB)* (2021), pp. 1–8. DOI: 10.1109/IJCB52358.2021.9484383.

[10] **Zander Blasingame**, Chen Liu, and Xin Yao. "Feature Creation Towards the Detection of Non-control-Flow Hijacking Attacks". In: *Artificial Neural Networks and Machine Learning – ICANN*

2021. Ed. by Igor Farkaš, Paolo Masulli, Sebastian Otte, and Stefan Wermter. Cham: Springer International Publishing, 2021, pp. 153–164. ISBN: 978-3-030-86362-3.

[11]   Gildo Torres, Zhiliu Yang, **Zander Blasingame**, James Bruska, and Chen Liu. "Detecting Non-Control-Flow Hijacking Attacks Using Contextual Execution Information". In: *Proceedings of the 8th International Workshop on Hardware and Architectural Support for Security and Privacy.* HASP '19. Phoenix, AZ, USA: Association for Computing Machinery, 2019. ISBN: 9781450372268. DOI: 10.1145/3337167.3337168. URL: https://doi.org/10.1145/3337167.3337168.

[12]   Chen Liu, Zhiliu Yang, **Zander Blasingame**, Gildo Torres, and James Bruska. "Detecting Data Exploits Using Low-Level Hardware Information: A Short Time Series Approach". In: *Proceedings of the First Workshop on Radical and Experiential Security.* RESEC '18. Incheon, Republic of Korea: Association for Computing Machinery, 2018, pp. 41–47. ISBN: 9781450357579. DOI: 10.1145/3203422.3203433. URL: https://doi.org/10.1145/3203422.3203433.

[13]   James Bruska, **Zander Blasingame**, and Chen Liu. "Verification of OpenSSL version via hardware performance counters". In: *Disruptive Technologies in Sensors and Sensor Systems.* Ed. by Russell D. Hall, Misty Blowers, and Jonathan Williams. Vol. 10206. International Society for Optics and Photonics. SPIE, 2017, 102060A. DOI: 10.1117/12.2263029. URL: https://doi.org/10.1117/12.2263029.

PROFESSIONAL EXPERIENCE

Research Assistant   Jun. 2018 - Present
Department of Electrical and Computer Engineering, Clarkson University
– Created AdjointDEIS a novel technique to calculate the gradients for diffusion ODEs/SDEs.
– Proposed Diffusion Morphs (DiM) a novel family of face morphing algorithms.
– Created a novel face morphing technique using a Diffusion-based generative pipeline.
– Developed a SOTA face morph detection system using adversarial learning.

Undergraduate Research Assistant   Jun. 2015 - May. 2018
Department of Electrical and Computer Engineering, Clarkson University
– Developed machine learning algorithms for the detection of malware using hardware information.
– Studied the theory of semi-supervised anomaly detection problems.

Engineering Intern   May 2016 - Aug 2016
Griffiss Institute
– Generated meta-statistics for several machine learning datasets.
– Designed android application to display data from a backend server.

Engineering Intern   Jul. 2014 - Aug. 2014
University of New Hampshire InterOperability Laboratory
– Designed a custom Linux image for embedded systems using the Yocto Project.
– Created a web application capable of monitoring and maintaining server processes.

GRANTS

Explainable Image Quality with Transformer-based Models 2023 - 2024
Center for Identification Technology Research, National Science Foundation

- Chen Liu (PI), Zander Blasingame
- $50,000 awarded
- Main Graduate Researcher.

Towards the Creation of a Large Dataset of High-Quality Face Morphs 2021 - 2024
Center for Identification Technology Research, National Science Foundation

- Chen Liu (PI), Stephanie Schuckers, Xin Li, Jeremy Dawson, Nasser Nasrabadi, David Doermann, Srirangaraj Setlur, Siwei Lyu, Xiaoming Liu, Sébastien Marcel
- $400,000 awarded.
- Primary graduate researcher at Clarkson University.

Comparative Detection of Facial Image Manipulation Techniques 2020 - 2022
Center for Identification Technology Research, National Science Foundation

- Chen Liu (PI), Zander Blasingame
- $45,000 awarded.
- Main Graduate Researcher.

Adversarial Learning Based Approach Against Face Morphing Attacks 2019 - 2021
Center for Identification Technology Research, National Science Foundation

- Chen Liu (PI), Stephanie Schuckers, Zander Blasingame
- $60,000 awarded.
- Main Graduate Researcher.

TEACHING EXPERIENCE

CyberSecurity Camp - Griffiss Institute Summer 2023, 2024
Instructor. Created Course material and ran the labs.

CyberSecurity Camp - Griffiss Institute Spring 2021, Summer 2020 - 2022
Teaching Assistant. Created Course material.

Electrical Science - Clarkson University Spring 2021
Teaching Assistant

Introduction to Digital Design - Clarkson University Fall 2018, 2019
Teaching Assistant

Electrical and Computer Engineering Sophomore Lab - Clarkson University Spring 2019
Teaching Assistant. Helped instructor create course material.

Software System Architecture - Clarkson University Spring 2017, 2018
Teaching Assistant

Differential Equations - Clarkson University Fall 2016
Teaching Assistant

PRESENTATIONS

[1] **Zander W. Blasingame**. "**Di**ffusion **M**orphs (**DiM**): The power of iterative generative models for attacking FR systems". In: *Idiap Research Institute.* Martigny, Switzerland, July 2024.

[2] **Zander W. Blasingame** and Chen Liu. "Diffusion for the Generation of Face Morphs". In: *Center for Identitification Technology Research (CITeR) and Document Security Alliance (DSA) Webinar.* Online, Feb. 2024.

[3] **Zander W. Blasingame** and Chen Liu. "Leveraging Diffusion Models for Stronger Face Morphing Attacks". In: *European Association for Biometrics (EAB) and the Center for Identitification Technology Research (CITeR) Biometrics Workshop.* Martigny, Switzerland, Apr. 2023.

[4] Nasser Nasrabadi, Chen Liu, David Doermann, and **Zander W. Blasingame**. "Face Morph Generation and Attack Detection". In: *International Face Performance Conference.* Online, Nov. 2022.

[5] Chen Liu, **Zander W. Blasingame**, Jeremy Dawson, and Jacob Dameron. "Morph attack detection and mitigation projects". In: *International Face Performance Conference.* Online, Oct. 2020.

AWARDS AND HONORS

IJCB Doctoral Consortium	2024

JOURNAL AND CONFERENCE REVIEWER

International Conference on Learning Representations (ICLR)	2025
Conference on Neural Information Processing Systems (NeurIPS)	2024
International Joint Conference on Biometrics (IJCB)	2024
IEEE Conference on Pattern Recognition (ICPR)	2024
IEEE Conference on Mobility: Operations, Services, and Technologies (MOST)	2024
IEEE Conference on Mobility: Operations, Services, and Technologies (MOST)	2023
International Workshop on Programming Models and Applications for Multicores and Manycores	2023
International Workshop on Programming Models and Applications for Multicores and Manycores	2022
International Conference on Artificial Neural Networks (ICANN)	2021
IEEE International Symposium on Workload Characterization	2020
Future Generation Computer Systems	2019
IEEE International Conference on Biometrics: Theory, Applications and Systems (BTAS)	2019
IEEE International Symposium on Parallel and Distributed Processing with Applications	2018

SKILLS

Programming Languages	Python, C/C++, Java, Javascript, Bash, MATLAB, VHDL
AI Frameworks and Libraries	Pytorch, TensorFlow, Numpy, Scipy, Matplotlib
Software	Linux, Vim, Git, Vivado, Altera, LaTeX
Audio	Over a decade of experience as a FOH engineer including worship services and theater productions