Xinqiao Zhang

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SUMMARY

Computer Engineering Ph.D. candidate at UCSD with deep expertise in computer vision and machine learning algorithms. I specialize in developing solutions with lightweight model architectures, deep learning, and generative AI. Proven ability to translate complex research into actionable, reliable technologies with a strong publication record in top conferences and journals such as NeurIPS, CVPR, and ICCV.

EDUCATION

UC San Diego
PhD, Computer Engineering Expected Aug. 2024
- Supervisors: Prof. Farinaz Koushanfar and Prof. Ke Huang

San Diego State University
MSEE, Electrical Engineering Dec. 2019
- Thesis title: IC Aging Prediction based on Machine Learning.

Northeastern University (CN) May 2017
BSEE, Automation
- Outstanding Student Leaders

EXPERIENCE

UC San Diego, San Diego, CA Dec. 2019 - Current
Graduate Student Researcher
- Research on graph neural networks (GNNs), transformer-based networks, and data science.
- Built a novel Media Authentication algorithm to counter Deepfakes for face classification (Journal publication)
- Developed a novel transformer-based machine-learning algorithm for sequence classification.
- Experienced with quantization and pruning.
- Resulted in numerous top-tier publications.

Arm, Austin, TX June 2023 - Sep. 2023
Research Intern
- Conducted in-depth research on security detection using Large Language Models (LLMs)
- Developed and implemented a data distillation algorithm, significantly reducing data size without compromising efficiency.

Arm, Austin, TX May 2022 - Aug. 2022
Research Intern
- Developed a novel vulnerability detection algorithm using Graph neural networks (GNNs), which became a benchmark within the company for enhancing detection capabilities.
- Led a project on data distillation that reduced data processing times by 30% without loss in efficacy, preparing datasets for faster deployment in security applications.

Fresh Wind Chinese Church of San Diego, San Diego, CA Aug. 2019 - Current
Deacon Board Member
- Led a team in the outreach department, organizing large-scale social events that enhanced community engagement and church attendance
- Recognized by the board and church members for exceptional communication and dedication to community-building.

（* indicates equal contribution）

PUBLICATION & PATENTS

Highlighted ML publications and patents

- **(Computer Vision/Distributed Computing**) Z. Ghodsi*, M, Javaheripi*, N. Sheybani*, **X. Zhang*,** K, Huang, & F. Koushanfar, (2023). zPROBE: Zero Peek Robustness Checks for Federated Learning**, (ICCV)** 2023
- **(Computer Vision/Video**) **Xinqiao Zhang,** Farinaz Koushanfar, Shehzeen Samarah Hussain, Paarth Neekhara, and Julian McAuley "Facesigns: Semi-Fragile Neural Watermarks For Media Authentication And Countering Deepfakes" Application Serial No.63/323,470.
- (**Computer Vision/Video**) S. Hussain*, P. Neekhara*, **X. Zhang**, K. Huang, J. Duarte, F. Koushanfar. FaceSigns: Semi-Fragile Watermarks for Media Authentication (ACM-TOMM) 2024
- **(Computer Vision/Image**) **Xinqiao Zhang,** Zahra Ghodsi, Mojan Javaheripi, Nojan Sheybani, and Farinaz Koushanfar, "Zero Peek Robustness Checks for Federated Learning" Application Serial No.63/496,157.
- **(Lightweight Model/Quantization**) **X. Zhang,** M. Samragh, S. Hussain, K. Huang, & F. Koushanfar. Scalable Binary Neural Network applications in Oblivious Inference**,** (ACM TECS) 2023
- **(Lightweight Model/Quantization**) M. Samragh, S. Hussain, **X. Zhang**, K. Huang, & F. Koushanfar. On the Application of Binary Neural Networks in Oblivious Inference. (**CVPR** BNN) 2021
- **(Computer Vision/Image**) Z. Ghodsi*, M, Javaheripi*, N. Sheybani*, **X. Zhang*,** K, Huang, & F. Koushanfar, zPROBE: Zero Peek Robustness Checks for Federated Learning. (**NeurIPS** TSRML**)** 2022 ***[Outstanding Paper Award]***
- **(Computer Vision/Video**) S. Hussain, N, Sheybani, P. Neekhara, **X. Zhang**, J. Duarte, F. Koushanfar, (2022) FastStamp: Accelerating Neural Steganography and Digital Watermarking of Images on FPGAs. In Proceedings of 2022 International Conference on Computer-Aided Design) (**ICCAD**) 2022

Other publications and patents

- (**Machine learning**) N. Sheybani, **X. Zhang**, S. U. Hussain, F. Koushanfar. SenseHash: Computing on Sensor Values Mystified at the Origin. IEEE (TETC) 2022
- (**Reinforcement Machine learning**) H. Chen, **X. Zhang**, K. Huang, F. Koushanfar. "AdaTest: Reinforcement Learning and Adaptive Sampling for On-chip Hardware Trojan Detection," ACM Transactions on Embedded Computing Systems (ACM TECS) 2022. (**TILOS 2022 Retreat Poster**)
- (**Machine Learning**) K. Huang, **X. Zhang**, and N. Karimi, "Real-time prediction for IC aging based on machine learning. " IEEE Transactions on Instrumentation and Measurement (TIM), 2019
- (**Machine Learning**) K. Huang, M.T.H. Anik, **X. Zhang**, and N. Karimi, "Real-Time IC Aging Prediction via On-Chip Sensors." 2021 IEEE Computer *Society Annual Symposium on VLSI (ISVLSI). IEEE, 2021*

SKILLS & AWARDS

- **Outstanding Paper Award,** NeurIPS TSRML, 2022
- **DAC Young Fellow** (58th Design Automation Conference), Nov. 2021
- **Major award** of 11th Siemens Industrial Automation Design Competition, Aug. 2016
- Programming Languages and Tools: **Python, PyTorch, Algorithms, Applied Machine Learning, API**
- Reviewer for IEEE Transactions on Dependable and Secure Computing, 2022
- Honorable Mention of Mathematical Contest in Modeling, Oct. 2016
- Bilingual- English (fluent) / Mandarin (native)

（* indicates equal contribution）