

ZITAO CHEN

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EDUCATION

1. Bachelor of Engineering in Information Security Sept. 2014 - Jun. 2018
School of Computer Science, **China University of Geosciences (Wuhan)**
GPA: 87.67/100
GRE: V158 Q168 AW:3.5
 2. Master of Applied Science in Electrical and Computer Engineering Sept. 2018 - May 2020 (**Expected**)
University of British Columbia
Supervisor: Prof. Karthik Pattabiraman

RESEARCH EXPERIENCE

<h3>Wearable Computing Security</h3> <ul style="list-style-type: none">• Lightweight and real-time key establishment scheme for wearable embedded devices.• Sensing user real-time motion to secure communication between body-worn devices.• Key establishment scheme leveraging original sensory data.• I independently proceeded the project under minimal supervision.	Undergraduate research
<h3>Reliability in Machine Learning Systems</h3> <ul style="list-style-type: none">• <i>Research question:</i> How to identify the critical bits in ML systems under the presence of transient hardware faults.• We analyze the mathematical properties of common ML systems, and find many of them exhibit monotonicity, which constraints the fault propagation behaviors.• We design a binary-search like fault injector to identify these critical bits, <i>without</i> resorting to doing fault injection (FI) on every state space.• Our approach can identify over 99.54% of critical bits with significantly lower overhead than doing FI on every state space, which is the only other way to find these critical bits.• Code: https://github.com/DependableSystemsLab/TensorFI-BinaryFI• <i>Ongoing research:</i> Mitigating hardware faults to enhance both the reliability and security of ML systems.	Graduate Research

PUBLICATION

- [SC'19] Zitao Chen, Guanpeng Li, Karthik Pattabiraman, Nathan DeBardeleben “BinFI: An Efficient Fault Injector for Safety-Critical Machine Learning Systems”, *In Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, AR: 20.9% (72/344) direct acceptance rate for regular papers.*
 - [FGCS] Zitao Chen, Wei Ren, Yi Ren and Kim-Kwang Raymond Choo, “LiReK: A Lightweight and Real-time Key Establishment Scheme for Wearable Embedded Devices by Gestures or Motions”, *Future Generation Computer Systems* (2018): 84, 126-138, [2018 Impact Factor: 5.768]

COMPUTER SKILLS

Programming Language	Python, C, Java, C++
Operation System	Linux, Windows

AWARD

Graduate Student Initiative: \$40000 2019