

# LISHAN YANG

Assistant Professor  
Department of Computer Science  
George Mason University

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## RESEARCH INTERESTS

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- Reliable operation of GPUs, non-conventional sensors, autonomous driving systems, and neural networks
- GPU architecture
- Software engineering efforts to accelerate reliability and system research process

## EDUCATION

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### Ph.D. in Computer Science

June 2022

Department of Computer Science  
William & Mary, Williamsburg, VA

- Advisor: Prof. Evgenia Smirni
- Dissertation Title: Practical GPGPU Application Resilience Estimation and Fortification

### B.E. in Computer Science

June 2016

School of Computer Science and Technology  
University of Science and Technology of China (USTC), Hefei, China

- Advisor: Prof. Bei Hua

## PUBLICATIONS

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A. Schmedding, R. Pincioli, **L. Yang**, E. Smirni, “Epidemic Spread Modeling for COVID-19 Using Cross-fertilization of Mobility Data”, IEEE Transactions on Big Data (TBD), to appear.

A. Schmedding, **L. Yang**, R. Pincioli, E. Smirni, “GeoSpread: an Epidemic Spread Modeling Tool for COVID-19 Using Mobility Data”, ACM International Conference on Information Technology for Social Good (GoodIT) 2022: pp. 125-131.

X. Zhou, A. Schmedding, H. Ren, **L. Yang**, P. Schowitz, E. Smirni, H. Alemzadeh, “Strategic Safety-Critical Attacks Against an Advanced Driver Assistance System”, 52th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) 2022: pp. 79-87.

R. Pincioli, **L. Yang**, J. Alter, E. Smirni, “Lifespan and Failures of SSDs and HDDs: Similarities, Differences, and Prediction Models”, IEEE Transactions on Dependable and Secure Computing (TDSC), to appear.

**L. Yang**, B. Nie, A. Jog, E. Smirni, “Enabling Software Resilience in GPGPU Applications via Partial Thread Protection”, IEEE/ACM 43rd International Conference on Software Engineering (ICSE) 2021: pp. 1248-1259. (Acceptance Rate: 22%) [PDF] [Video] [Slides]

**L. Yang**, B. Nie, A. Jog, E. Smirni, “SUGAR: Speeding Up GPGPU Application Resilience Estimation with Input Sizing”, Proceedings of the ACM on Measurement and Analysis of Computing Systems (Sigmetrics) 2021, no. 1: 1-29. (Acceptance Rate: 12%) [PDF] [Video] [Slides]

**L. Yang**, B. Nie, A. Jog, E. Smirni, “Practical Resilience Analysis of GPGPU Applications in the Presence of Single- and Multi-bit Faults”, IEEE Transactions on Computers, vol. 70, no. 1, pp. 30-44, 1 Jan. 2021. [PDF]

B. Nie, **L. Yang**, A. Jog, E. Smirni, “Fault Site Pruning for Practical Reliability Analysis of GPGPU Applications”, 51st Annual IEEE/ACM International Symposium on Microarchitecture (MICRO) 2018: pp. 749-761. (Acceptance Rate: 21%) [PDF] [Slides]

K. Zhang, B. He, J. Hu, Z. Wang, B. Hua, J. Meng, **L. Yang**, “G-NET: Effective GPU Sharing in NFV Systems”, 15th USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2018: pp. 187-200. (Acceptance Rate: 16%) [PDF]

**L. Yang**, L. Cherkasova, R. Badgular, J. Blancaflor, R. Konde, J. Mills, E. Smirni, “Evaluating Scalability and Performance of a Security Management Solution in Large Virtualized Environments”, Proceedings of the 2018 ACM/SPEC International Conference on Performance Engineering (ICPE): pp. 168-175. [PDF] [Slides]

#### *Refereed Posters*

**L. Yang**, “Typhoon: Enabling GPGPU Application Resilience Estimation with Different Input Types”, ACM Sigmetrics Student Research Competition (SRC) 2021

**L. Yang**, A. Schmedding, R. Pincioli, E. Smirni, “Simulating COVID-19 Containment Measures Using the South Korean Patient Data”, Sensys 2020, COVID-19 Pandemic Research Poster Session.

### *PROFESSIONAL EXPERIENCE*

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**Assistant Professor** August 2022 - Present  
Department of Computer Science, George Mason University, Fairfax, VA

**Research Assistant** August 2017 - June 2022  
Department of Computer Science, College of William & Mary, Williamsburg, VA

**Teaching Assistant** August 2016 - May 2018  
Department of Computer Science, William & Mary, Williamsburg, VA

- Computer Organization, Network Systems and Design, Simulation, Introduction to Cryptography

**Software Engineering Intern** May 2021 - August 2021  
Facebook Inc, Menlo Park, CA

**Reliability Intern** June 2019 - October 2019  
IBM Corporation, Austin, TX

**Software Engineering Intern** May 2017 - August 2017  
Hytrust Inc, Mountain View, CA

### *TEACHING*

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- CS475 Concurrent & Distributed Systems, 2022 Fall
- CS695 Special Topics: Advanced Computer Architecture, 2023 Spring

### *AWARDS*

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- SPEC Kaivalya Dixit Distinguished Dissertation Award, 2022
  - W&M CS Graduate Park Award, 2022
  - Student Travel Grant for DSN, 2022
  - W&M International Student Opportunity Scholarship , 2021
  - vGHC Students and Faculty Scholarship, 2021
  - Student Travel Grant for MICRO, ICPE, and NSDI, 2018
  - W&M OGSR Research Grant, 2018
  - W&M Student Leadership Grant, 2018
  - W&M CS Student Travel Grant, 2018
  - Active Member in Social Practice, USTC, 2015
  - Excellent Student Cadre, USTC, 2014
  - Outstanding League Member, USTC, 2013
  - Tenth Yang Ya Scholarship, USTC, 2013
  - Second Prize in Essay Competition, USTC, 2013

## *SERVICE*

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- Program Committees: DSN 2023, SC2023, IPDPS 2023, HPDC 2023, SRDS 2023, AIPerf 2023
- Organizing Committees: Sigmetrics 2023 (Publicity Chair), HPDC 2023 (Social Media Chair), HotStorage 2023 (Virtual Conference Chair), DSML 2023 (General and PC Co-chair)
- Panelist: W&M Symposium for Graduate Studies 2022
- Journal Reviewing: ACM TOMPECS (Transactions on Modeling and Performance Evaluation of Computing Systems)
- Session Chair & Poster Judge: ACM Capital Region Celebration of Women in Computing (CAPWIC) 2021 and 2022
- Sub-reviewer of Sigmetrics 2022, DSN 2022, DSN 2021, Sigmetrics 2021, Sigmetrics 2020, Performance 2020, ICPE 2020, Sigmetrics 2019, DSN 2019
- Member of WHPC-Virginia (Women in High Performance Computing in Virginia) and SWC-WM (Society of Women in Computing in William & Mary)
- Volunteer: HPDC 2019 Program Committee Meeting
- Mentor: HackViolet 2022, AnitaB.org Mentorship Program 2022, W&M GSA DEI Mentoring Program 2021-2022