Mert SIDE

https://mertside.com | https://www.linkedin.com/in/mert-side/ | Lubbock, TX (USA)

EDUCATION

Ph.D., Computer Science, Texas Tech University, Lubbock, TX, U.S. 09/2019 – 05/2025 (*expected*)
- Focusing on security, microarchitecture, and HPC systems.
- Advised by Dr. Yong Chen.
- GPA: 3.95 out of 4.

B.E., Computer Engineering, Okan University, Istanbul, Turkey 09/2014 – 06/2018
- Under Full Scholarship.
- Ranked 1st in the College of Engineering.
- Ranked 2nd in the University.
- GPA: 3.87 out of 4.

B.E., Industrial Engineering, Okan University, Istanbul, Turkey 09/2015 – 06/2019
- Double Major Program.
- GPA: 3.61 out of 4.

Study Abroad (Erasmus+): University of Minho, Guimarães, Portugal 09/2016 – 01/2017

RESEARCH INTERESTS

Computer architecture, cybersecurity, and high-performance computing; GPU-accelerated computing resources, global address space extensions using capability-based addressing.

EXPERIENCE

Research Assistant: 09/2022 – Present
Department of Computer Science, Texas Tech University, Lubbock, TX
- Implementing an address extension technique for secure architectures, enhancing memory protection capabilities. 01/2021 – 09/2021
- Collaborating in the design and implementation of a global address space extension on RISC-V and ARM architectures, bolstering memory protection while enabling scalable HPC.
- Developed a cross-VM covert channel that functioned on virtualized GPUs, leading to the discovery of a website fingerprinting vulnerability using CUDA.
- Investigated mitigating this side-channel vulnerability on GPUs, contributing to improved hardware security.

Teaching Assistant: 09/2021 – 09/2022
Department of Computer Science, Texas Tech University, Lubbock, TX
Partial List: 09/2019 – 01/2021
- ENGR1330 Computational Thinking with Data Science [Python]
  - Instructed labs. Fall 2021 & Spring 2022. Virtual.
- CS1412 Programming Principles II [C]
  - Instructed labs. Spring 2020 & Summer 2020. Hybrid.
- CS2413 Data Structures [C++]
  - Instructed labs. Fall 2019. Face-to-face.

Student Assistant for *International Office* 01/2019 – 06/2019
Okan University, Istanbul, Turkey
- Supported the *Erasmus Programme Office* by promoting exchange opportunities across the University.
- Facilitated data entry and processing to enable transnational exchange programmes.

Industrial Engineering Internship 08/2017 – 09/2017
ENTES Electronics, Istanbul, Turkey
- Analyzed the manufacturing workstations in terms of product flow and workplace ergonomics.
- Proposed optimizations to their manufacturing line.

Computer Science Engineering Internship 06/2017 – 07/2017
Department of Computer Science, Texas Tech University, Lubbock, TX
- Participated in the *Edward E. Whitacre Jr. College of Engineering Research Experience for Undergraduates* (REU).
- Conducted research on "Malware Signatures in Android Apps."

Computer Engineering Internship 08/2016 – 09/2016
AIR Telecommunication Solutions, Istanbul, Turkey
- Learned the basics of the telecommunication industry.
- Collaborated on developing a web interface for their products.

TECHNICAL SKILLS

- *Programming/Scripting Languages:* C/C++/C#, Python, Assembly, Java, Swift, Shell Scripting, LaTeX, SQL.
- *Frameworks & Tools:* CUDA, Pthreads, MPI, NumPy, Pandas, TensorFlow, Keras, Git.
- *Web Development:* HTML5, CSS3, JavaScript.
- *Select Software:* MATLAB, Kicad, Weka, Simio, Visio, AutoCAD.

PUBLICATIONS

Peer-reviewed Publications:
- **Mert Side**, Fan Yao, Zhenkai Zhang. 2022. LockedDown: Exploiting Contention on Host-GPU PCIe Bus for Fun and Profit. *7th IEEE European Symposium on Security and Privacy (EuroS&P)*.
- Ghazanfar Ali, Sridutt Bhalachandra, Nicholas Wright, **Mert Side**, Yong Chen. 2022. Optimal GPU Frequency Selection using Multi-Objective Approaches for HPC Systems. *26th IEEE High Performance Extreme Computing (HPEC)*.
- **Mert Side**, Brody Williams, John Leidel, Jonathan Woodruff, Simon W. Moore, Yong Chen. 2023. Towards xBGAS on CHERI: Supporting a Secure Global Memory. *IEEE International Symposium on Parallel and Distributed Processing Workshops and Phd Forum (IPDPSW)*.
- Ghazanfar Ali, **Mert Side**, Sridutt Bhalachandra, Nicholas Wright, Yong Chen. 2023. Performance-aware Energy-efficient GPU Frequency Selection using DNN-based Models. *ACM International Conference on Parallel Processing (ICPP)*.
- Ghazanfar Ali, **Mert Side**, Sridutt Bhalachandra, Nicholas Wright, Yong Chen. 2023. An automated and portable method for selecting an optimal GPU frequency. *Elsevier Journal of Future Generation Computer Systems (FGCS)*.

COLLOQUIA, CONFERENCE, AND WORKSHOP PRESENTATIONS

Poster Presentations:

- **Mert Side**, Xi Wang, Yong Chen. 2021. Bringing Secure Enclaves to xBGAS. *NSF CAC Semiannual IAB Meeting, November 11th-12th, 2021.*
- **Mert Side**, Brody Williams, Yong Chen. 2022. Porting xBGAS to Arm Morello. *NSF CAC Semiannual IAB Meeting, April 21st, 2021.*
- **Mert Side**, Brody Williams, John Leidel, Yong Chen. 2022. xBGAS on CHERI: Porting xBGAS Runtime. *NSF CAC Semiannual IAB Meeting, November 11th, 2022.*
- **Mert Side**, Brody Williams, John Leidel, Jonathan Woodruff, Simon W. Moore, Yong Chen. 2023. Towards xBGAS on CHERI: A Simplified xbrtime for Morello. *NSF CAC Semiannual IAB Meeting, May 25th, 2023.*

Paper Presentations:

- **Mert Side**, Fan Yao, Zhenkai Zhang. 2022. LockedDown: Exploiting Contention on Host-GPU PCIe Bus for Fun and Profit. *7th IEEE European Symposium on Security and Privacy (EuroS&P)*.
- **Mert Side**, Brody Williams, John Leidel, Jonathan Woodruff, Simon W. Moore, Yong Chen. 2023. Towards xBGAS on CHERI: Supporting a Secure Global Memory. *IEEE International Symposium on Parallel and Distributed Processing Workshops and Phd Forum (IPDPSW)*.

ACADEMIC INVOLVEMENT

Served as an External Reviewer on:

- IEEE Transactions on Computers – TOC'2020.
- 36th ACM/SIGAPP Symposium on Applied Computing – SAC'2021.
- Journal of Parallel and Distributed Computing – JPDC'2021.
- 7th IEEE European Symposium on Security and Privacy – EuroS&P'2022.

PROFESSIONAL MEMBERSHIPS

- ACM Member (active since 2021)
- IEEE Member (active since 2022)

OTHER SKILLS

Languages:

- **Native:** Turkish
- **Fluent:** English
- **Basic:** Portuguese (CEFR: A2)

Licenses & Certifications:

- Google Cybersecurity Certificate on Coursera earned in November 2023.
- Certified in providing first aid (EFR+CPR).
- Licensed PADI Rescue Scuba Diver since July 2015.

VOLUNTEER SERVICE

Erasmus Student Network, Okan University, Istanbul, Turkey 06/2017 – 06/2019
Local President

- Advocated for student mobility across Europe via assisting study abroad and student exchange programs.
- Coordinated our section and represented on a national level.