SHEN LEMING

CONTACT INFORMATION

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Research Interest: Wireless Sensing, IoT Applications & AI, IoT Security, Mobile Computing

Address: QT 404, Chow Yei Ching Building, The Hong Kong Polytechnic University, Hong Kong SAR, China.

EDUCATION

The Hong Kong Polytechnic University *2022.08 - Present*
Supervisor: Prof. Yuanqing Zheng
1st-year, Doctor of Philosophy
Department of Computing

Zhejiang University *2018.08 - 2022.06*
Supervisor: Prof. Jinsong Han
4-year, Bachelor's Degree Overall GPA: 3.77/4.0
College of Computer Science and Technology, School of Cyber Science and Technology

RESEARCH EXPERIENCE

The Hong Kong Polytechnic University Hong Kong SAR, China
Supervised by Prof. **Yuanqing Zheng**

- Heterogeneity-Aware Federated Learning on Resource-Constrained Devices 2022.11 - Present
- WIFI-based Human Activity Recognition System via Zero-shot Learning 2021.05 -Present

Zhejiang University Hangzhou, Zhejiang, China
Supervised by Prof. **Jinsong Han**

- Secure and Usable User Authentication via Earphone IMU 2020.04 - 2021.04
- Practical Threat from Acoustic Transduction Attacks on Inertial Sensors 2020.09 - 2021.09
- Implementation of WIFI-based Meta-learning Activity Recognition System 2021.04 - 2022.04
- WIFI-based Human Activity Recognition System via Zero-shot Learning 2021.05 - Present

PUBLICATIONS

Conferences

1. [**INFOCOM'24**] Kaiyan Cui, **Leming Shen**, Yuanqing Zheng, Fu Xiao, Jinsong Han. *Talk2Radar: Talking to mmWave Radars via Smartphone Speaker*. In Proceedings of the IEEE International Conference on Computer Communications, INFOCOM, May 20–23, 2024, Vancouver, Canada.

2. [**SenSys'22**] Ming Gao, Lingfeng Zhang, **Leming Shen**, Xiang Zou, Jinsong Han, Feng Lin, and Kui Ren. *KITE: Exploring the practical threat from acoustic transduction attacks on inertial sensors*. In Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems, SenSys '22, page 696–709, New York, NY, USA, 2023. Association for Computing Machinery.

3. [**ICDCS'21**] Jianwei Liu, Wenfan Song, **Leming Shen**, Jinsong Han, Xian Xu, Kui Ren, *Mandi-Pass: Secure and Usable User Authentication via Earphone IMU*. 41st IEEE International Conference on Distributed Computing Systems, ICDCS 2021, Washington DC, USA, July 7-10, 2021, 674–684. https://doi.org/10.1109/ICDCS51616.2021.00070

Journals

1. [**TMC'23**] Ming Gao, Lingfeng Zhang, **Leming Shen**, Xiang Zou, Jinsong Han, Feng Lin, Kui Ren, *Exploring Practical Acoustic Transduction Attacks on Inertial Sensors in MDOF Systems*. IEEE Transactions on Mobile Computing, pages 1–18, 2023.1. doi: 10.1109/TMC.2023.3277287.
2. [**TMC'22**] Jianwei Liu, Wenfan Song, **Leming Shen**, Jinsong Han, Kui Ren, *Secure User Verification and Continuous Authentication via Earphone IMU*. 41st IEEE Transactions on Mobile Computing, TMC 2022, Washington DC, USA, July 7-10, 2021, 674–684. https://doi.org/10.1109/TMC.2022.3193847

Others

1. [**ICDCS'23**] **Leming Shen**, Yuanqing Zheng, *PhD Symposium: FedDM: Data and Model Heterogeneity-Aware Federated Learning via Dynamic Weight Sharing*. 43st IEEE International Conference on Distributed Computing Systems, ICDCS 2023, Hong Kong, China, July 18-21, 2023.
2. [**SenSys'22**] Kaiyan Cui, Qiang Yang, **Leming Shen**, Yuanqing Zheng, and Jinsong Han. *Poster Abstract: Integrated sensing and communication between daily devices and mmwave radars*. In Proceedings of the 20th ACM Conference on Embedded Networked Sensor Systems, SenSys '22, page 831–832, New York, NY, USA, 2023. Association for Computing Machinery.

PATENTS

1. A Reliable User Authentication Method and System Based on Mandible Biometrics, Jianwei Liu, Wenfan Song, **Leming Shen**, Jinsong Han, Kui Ren.

TEACHING

- Teaching Assistant, COMP5311 Internet Infrastructure And Protocols, 2022 Fall.
- Teaching Assistant, COMP1011 Programming Fundamentals, 2023 Spring.

INTERNSHIP

1. **Research Student**, School of Cyber Science and Technology, College of Computer Science and Technology, Zhejiang University, Hangzhou, China, summer, 2021.
2. **Research Student**, School of Cyber Science and Technology, College of Computer Science and Technology, Zhejiang University, Hangzhou, China, winter, 2021.
3. **Research Student**, School of Cyber Science and Technology, College of Computer Science and Technology, Zhejiang University, Hangzhou, China, summer, 2020.
4. **Research Student**, School of Cyber Science and Technology, College of Computer Science and Technology, Zhejiang University, Hangzhou, China, winter, 2020.

HONORS & AWARDS

1. **Outstanding Graduates of Zhejiang University**, awarded on Undergraduate period, 2022.
2. **Excellent Undergraduate Graduation Thesis of Zhejiang University**, *Research and Implementation of Meta-learning-based Wi-Fi Activity Recognition System*, 2022
3. **Microsoft Learn Student Ambassadors**, presented by Microsoft, 2022.
4. **Successful Participant** in Interdisciplinary Contest in Modeling, 2021.
5. **Microsoft Student Partners**, presented by Microsoft, 2021.
6. **Successful Participant** in Interdisciplinary Contest in Modeling, 2020.
7. **Second Prize**, Network Technology Challenges, China College Computing Contest, 2020.

8. **First Prize**, east China division, Network Technology Challenges, China College Computing Contest, 2020.
9. **Successful Participant**, National College Students Network Security Knowledge Competition, 2020.
10. **Microsoft Student Partners**, presented by Microsoft, 2020.

PROJECT EXPERIENCE

Programming skills:

1. **Programming Languages:** C, C++, C#, Python, Java, Matlab, LaTex, JavaScript, SQL, HTML, CSS, Go, Verilog, Markdown.
2. **Programming Framework:** UWP, WPF, PyTorch, Numpy, Django, Spring, Zookeeper, Vue.js, React.js, Express, Bootstrap, BeeGo, Android Framework, Node.js, Echarts, Highcharts, Nginx, Docker, Kubernetes, Arduino.
3. **Programming Tools & Platforms:** Linux CSI Tool, Microsoft Visual Studio, Microsoft Visual Studio Code, Microsoft SQL Server, JetBrains PyCharm, JetBrains IntelliJ IDEA, JetBrains WebStorm, JetBrains DataGrip, JetBrains GoLand, JetBrains CLion, JetBrains Fleet, Android Studio, MySQL, OrientDB, MongoDB, Redis.

Projects

1. A LISP-like made-up programming language interpreter. (in Java)
   - The made-up programming language is abbreviated as MUA
   - MUA supports some basic data types, such as number, word, list, and boolean
   - MUA supports some basic operations on variables, such as print, add
   - MUA supports expression evaluation
   - MUA supports function call and even recursion
   - MUA also provide many list operations
2. A MIPS assembly language interpreter. (in C#)
   - The interpreter can convert MIPS assembly language to machine code.
   - The interpreter can convert machine code to MIPS assembly language.
   - The interpreter can simulate executing MIPS assembly code in CPU with RAM
3. A micro epidemic management web application. (in Python & Vue.js)
4. A book injury system based on web spider. (in Java)
5. A college teaching assistance web platform. (in Python & Bootstrap)
6. An IoT device management and monitoring web platform. (in Python & React.js)
7. A general merchandise vertical search engine. (in Java, Python & Vue.js)
8. A distributed mini database system. (in C, C++, Java)