

Bangjie SUN

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Education

National University of Singapore

Ph.D., Computer Science (Current)

Aug 2020 – Present

National University of Singapore

B.S., Computer Science (First Class Honours)

Aug 2016 – May 2020

Research Interests

Interests: Ubiquitous Computing, Mobile Sensing (*Primary*) and Computer Security (*Secondary*)

My research sits at the intersection of ubiquitous computing, mobile sensing, and computer security, with a focus on making provenance evidence recovery and verification practical on commodity everyday devices. I build deployable systems that recover and verify evidence of origin, authenticity, ownership, and transformation history for both physical products and digital content, drawing on complementary signals such as visible physical cues, sensor fingerprints, computational forensics, and cryptographic records. Looking ahead, my vision is to advance hybrid provenance as a unifying framework for trust across the physical and digital worlds: systems that seamlessly combine intrinsic and extrinsic evidence, remain robust under adversarial manipulation, and enable ordinary users to verify the things they buy, create, and share with confidence.

Honors and Awards

- **Dean's Graduate Research Excellence Award**
School of Computing, National University of Singapore Aug 2025
- **Best Poster Award**
ACM International Conference on Mobile Systems, Applications, and Services (MobiSys'25) Jun 2025
- **Best Paper Award**
ACM International Conference on Mobile Systems, Applications, and Services (MobiSys'24) Jul 2024
- **Research Achievement Award**
School of Computing, National University of Singapore Jan 2024
- **Best Poster Award**
ACM International Conference on Mobile Systems, Applications, and Services (MobiSys'22) Jul 2022
- **Dean's List**
School of Computing, National University of Singapore Aug 2017 and May 2018

Professional Experience

National University of Singapore, Singapore

- Research Assistant, Department of Computer Science, School of Computing Sep 2025 – Present
- Graduate Tutor, Department of Computer Science, School of Computing Aug 2020 – Aug 2025

PayPal, Singapore

Software Engineer Intern, Infrastructure for Risk and Compliance

May 2018 – Nov 2018

Publications

Journal and Conference Papers

Listed in reverse chronological order

Published in Top Conference [*Top Conf*] in:

- **Mobile Computing** [*Mob*]: ACM MobiSys, ACM SenSys

• **Computer Security** [*Sec*]: USENIX Security, IEEE S&P

- [1] [**Top Conf: Mob**] [**MobiSys'25**] **Bangjie Sun**, Mun Choon Chan, and Jun Han. 2025. *CAMPrints: Leveraging the “Fingerprints” of Digital Cameras to Combat Image Theft*. In *The 23rd Annual International Conference on Mobile Systems, Applications and Services (MobiSys '25)*, June 23–27, 2025, Anaheim, CA, USA. ACM, New York, NY, USA, 14 pages. Acceptance Rate: 18.0% (42 of 233). **Best Poster Award for the poster that accompanies the paper.**
- [2] [**Top Conf: Sec**] [**USENIX Security'24**] Jiang, Nan, **Bangjie Sun**, Terence Sim, and Jun Han. *Can I Hear Your Face? Pervasive Attack on Voice Authentication Systems with a Single Face Image*. In *33rd USENIX Security Symposium (USENIX Security 24)*, pp. 1045–1062. 2024. Acceptance Rate: 18.3% (417 of 2276).
- [3] [**Top Conf: Mob**] [**MobiSys'24**] Jonghyuk Yun, Kyoosik Lee, Kichang Lee, **Bangjie Sun**, Jaeho Jeon, Jeonggil Ko, Inseok Hwang, and Jun Han. 2024. *PowDew: Detecting Counterfeit Powdered Food Products using a Commodity Smartphone*. In *Proceedings of the 22nd Annual International Conference on Mobile Systems, Applications and Services (MobiSys '24)*. Association for Computing Machinery, New York, NY, USA, 210–222. Acceptance Rate: 16.3% (43 of 263). **Best Paper Award.**
- [4] [**Top Conf: Mob**] [**SenSys'23**] **Bangjie Sun**, Kanav Sabharwal, Gyuyeon Kim, Mun Choon Chan, and Jun Han. 2023. *Testing Masks and Air Filters with Your Smartphones*. In *The 21st ACM Conference on Embedded Networked Sensor Systems (SenSys '23)*, November 12–17, 2023, Istanbul, Turkiye. ACM, New York, NY, USA, 15 pages. Acceptance Rate: 18.9% (34 of 179).
- [5] [**Top Conf: Mob**] [**MobiSys'22**] **Bangjie Sun**, Sean Rui Xiang Tan, Zhiwei Ren, Mun Choon Chan, and Jun Han. 2022. *Detecting Counterfeit Liquid Food Products in a Sealed Bottle Using a Smartphone Camera*. In *The 20th Annual International Conference on Mobile Systems, Applications and Services (MobiSys '22)*, June 25–July 1, 2022, Portland, OR, USA. ACM, New York, NY, USA, 14 pages. Acceptance Rate: 21.6% (38 of 176).
- [6] [**Top Conf: Mob**] [**SenSys'21**] Sriram Sami, Sean Rui Xiang Tan, **Bangjie Sun**, and Jun Han. 2021. *LAPD: Hidden Spy Camera Detection using Smartphone Time-of-Flight Sensors*. In *Proceedings of the 19th ACM Conference on Embedded Networked Sensor Systems (SenSys '21)*. Association for Computing Machinery, New York, NY, USA, 288–301. Acceptance Rate: 17.9% (25 of 139).
Most downloaded paper across all years of ACM SenSys publications until present on ACM DL.
Top 3rd most downloaded paper across all years of ACM SIGMOBILE publications until present on ACM DL.
- [7] [**J. Vis 2020**] Michael Burch, Alberto Veneri, and **Bangjie Sun**. *Exploring eye movement data with image-based clustering*. *Journal of Visualization* 23 (2020): 677–694.
- [8] [**VINCI'19**] Michael Burch, Alberto Veneri, and **Bangjie Sun**. 2019. *EyeClouds: A Visualization and Analysis Tool for Exploring Eye Movement Data*. In *Proceedings of the 12th International Symposium on Visual Information Communication and Interaction (VINCI'19)*. Association for Computing Machinery, New York, NY, USA, Article 8, 1–8.

Posters, Demos and Invited Articles

- [1] [**Invited Article: GetMobile'25**] Jonghyuk Yun, Kyoosik Lee, Kichang Lee, **Bangjie Sun**, Jaeho Jeon, JeongGil Ko, Inseok Hwang, and Jun Han. *A Smartphone to the Rescue: Detecting Counterfeit Powdered Food Products*. *GetMobile: Mobile Computing and Communications* 28, no. 4 (2025): 38–43.
- [2] [**Poster Abstract: MobiSys'24**] Jonghyuk Yun, Kyoosik Lee, Kichang Lee, **Bangjie Sun**, Jaeho Jeon, Jeonggil Ko, Inseok Hwang, and Jun Han. *Poster: Towards Counterfeit Powdered Food Products Detection using a Commodity Smartphone*. In *Proceedings of the 22nd Annual International Conference on Mobile Systems, Applications and Services*, pp. 640–641. 2024.
- [3] [**Poster Abstract: MobiSys'22**] **Bangjie Sun**, Sean Rui Xiang Tan, Zhiwei Ren, Mun Choon Chan, and Jun Han. *On utilizing smartphone cameras to detect counterfeit liquid food products*. In *Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services*, pp. 551–552. 2022. **Best Poster Award.**
- [4] [**Poster Abstract: SenSys'21**] Sriram Sami, Sean Rui Xiang Tan, **Bangjie Sun**, and Jun Han. *On Utilizing Smartphone Time-of-Flight Sensors to Detect Hidden Spy Cameras*. In *Proceedings of the 19th ACM Conference on Embedded Networked Sensor Systems*, pp. 384–385. 2021.

Bachelor's Dissertation

A Real-time Caustics and Global Illumination Rendering Framework with RTX Technology

Committee: Dr. Low Kok Lim (Advisor), Dr. Huang Zhiyong

Apr 2020

Teaching

Graduate Tutor

- **Database Systems (CS2102)**
School of Computing, National University of Singapore Spring 2023, 2024 and 2025
- **Programming Methodology (CS1101S)**
School of Computing, National University of Singapore Fall 2022, 2023 and 2024
- **Software Engineering Project (CS3203)**
School of Computing, National University of Singapore Fall 2020, Spring 2021 and 2022

Teaching Assistant / Course Project Mentor

- **Visual Computing (SWS3026)**
Teaching Assistant
School of Computing, National University of Singapore Summer 2023 and 2024
- **Orbital Summer 2020**
Course Project Mentor (*Best Advisor Award*)
School of Computing, National University of Singapore
- **Graphics Rendering Techniques (CS4247)**
Teaching Assistant
School of Computing, National University of Singapore Spring 2020
- **Computer Graphics (CS3241)**
Teaching Assistant
School of Computing, National University of Singapore Fall 2019