Aritra Dhar

aritra.dhar@huawei.com
+41779448684
aritradhar.com
www.linkedin.com/in/aritradhar
scholar.google.com/citations?hl=en&user=Icgn4goAAAAJ
Zurich, Switzerland

Employment History

Aug 2021 – .. **(Senior) Researcher - Hardware Security.** Von Neuman Lab, Huawei Zurich Research Center, Zurich, Switzerland.
- Confidential computing, trusted execution environments, hardware security

Dec 2014 – Apr 2016 **Research Engineer.** Xerox Research Center India, Bangalore, India.
- Privacy preserving targeted advertisement and recommendation systems
- Using smartphone and smartwatches to assist and navigate the visually impaired

Jan 2013 – July 2013 **Research Intern.** Accenture Technology Labs, Bangalore, India.
- Taint analysis on Java program to detect vulnerabilities like SQL injection, XSS
- Increasing anonymity in bitcoin transaction using aggregate signature scheme

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Education

2016 – 2021 **Ph.D., Computer Science, ETH Zurich, Switzerland**
Advisor: Dr. Srdjan Čapkun, System Security Group
Thesis title: *Building Trust in Modern Computing Platforms*

2012 – 2014 **M.Tech. Computer Science (Information Security), IIIT Delhi, India**
Thesis title: *Clotho : Saving Programs from Malformed Strings and Incorrect String-handling*

2008 – 2012 **B.Tech. Computer Science, WBUT, India**
Thesis title: *Security of Key Pre-distribution Schemes in Wireless Sensor Networks*

Research Publications and Patents

Conference Proceedings

1. Schneider*, M., **Dhar***, A., Puddu, I., Kostiainen, K., & Capkun, S. (2022). PIE: A platform-wide TEE. In *CHES 2022 (to appear)*. Retrieved from https://arxiv.org/abs/2010.10416
2. **Dhar**, **A.**, Puddu, I., Kostiainen, K., & Capkun, S. (2020). Proximitee: Hardened SGX attestation by proximity verification. In *ACM CODASPY 2020*.
3. **Dhar**, **A.**, Ulqinaku, E., Kostiainen, K., & Capkun, S. (2020). Protection: Root-of-trust for IO in compromised platforms. In *NDSS 2020*.
4. Mavroudis, V., Wüst, K., **Dhar**, **A.**, Kostiainen, K., & Capkun, S. (2020). Snappy: Fast on-chain payments with practical collaterals. In *NDSS 2020*.
5. Sommer, D. M., **Dhar**, **A.**, Malisa, L., Mohammadi, E., Ronzani, D., & Capkun, S. (2019). Deniable upload and download via passive participation. In *NSDI 2019*.

6. Allabadi, G., **Dhar**, **A.**, Bashir, A., & Purandare, R. (2018). METIS: resource and context-aware monitoring of finite state properties. In *Runtime verification RV 2018*.
7. Matetic, S., Ahmed, M., Kostiainen, K., **Dhar**, **A.**, Sommer, D. M., Gervais, A., … Capkun, S. (2017). ROTE: rollback protection for trusted execution. In *USENIX security 2017*.
8. **Dhar**, **A.**, Nittala, A., & Yadav, K. (2016). Tactback: Vibrotactile braille output using smartphone and smartwatch for visually impaired. In *ACM web for all conference, W4A '16*.
9. **Dhar**, **A.**, Purandare, R., Dhawan, M., & Rangaswamy, S. (2015). CLOTHO: saving programs from malformed strings and incorrect string-handling. In *ESEC/FSE 2015*.
10. Saxena, A., Misra, J., & **Dhar**, **A.** (2014). Increasing anonymity in bitcoin. In *Financial cryptography and data security - FC 2014*.
11. Sarkar, P., Rai, B. K., & **Dhar**, **A.** (2013). Connecting, scaling and securing RS code and TD based kpds in wsns: Deterministic merging. In *ACM mobihoc '13*.

Journal Articles

1. Kostiainen, K., **Dhar**, **A.**, & Capkun, S. (2020). Dedicated security chips in the age of secure enclaves. *IEEE Security Privacy*, *18*(5), 38–46.
2. Tulabandhula, T., Vaya, S., & **Dhar**, **A.** (2020). Privacy preserving targeted advertising and recommendations. *Journal of Business Analytics*.

Preprints

1. Sluganovic, I., Ulqinaku, E., **Dhar**, **A.**, Lain, D., Capkun, S., & Martinovic, I. (2020). Integriscreen: Visually supervising remote user interactions on compromised clients. Retrieved from `https://arxiv.org/abs/2011.13979`
2. **Dhar**, **A.**, Yu, D.-Y., Kostiainen, K., & Capkun, S. (2017). Integrikey: End-to-end integrity protection of user input. Retrieved from `https://eprint.iacr.org/2017/1245`

Patents

1. **Dhar**, **A.**, Vaya, S., Singh, A., Solanki, B. S., & Sharma, S. (2020). *Method and system for displaying targeted content on a digital signage board*. US Patent 10,825,057.
2. **Dhar**, **A.**, & Vaya, S. (2019). *Methods and systems for broadcasting targeted advertisements to mobile device*. US Patent 10,333,909.
3. Singh, A., Manjunath, G., Vaya, S., Solanki, B. S., Sharma, S., & **Dhar**, **A.** (2019). *Method and system for receiving targeted content*. US Patent 10,311,480.
4. Vaya, S., **Dhar**, **A.**, Solanki, B. S., Singh, A., Sharma, S., Pande, N., & Manjunath, G. (2019). *Methods and systems for interaction with digital signage board*. US Patent 10,489,824.
5. **Dhar**, **A.**, & Yadav, K. (2018). *Methods and systems for providing non-auditory feedback to users*. US Patent App. 15/607,804.
6. Vaya, S., **Dhar**, **A.**, & Tulabandhula, T. (2018). *Systems and methods for privacy preserving recommendation of items*. US Patent App. 15/417,274.

Talks

2014 **Accenture technology Labs, India**, How to patch bugs in Large Software

2015 **FSE 2015, Bergamo, Italy**, Clotho: Saving Programs from Malformed Strings and Incorrect String-Handling

Talks (continued)

- **[PhD talk] MPI-SWS, Saarbruken, Germany**, Clotho: Saving Programs from Malformed Strings and Incorrect String-Handling
- **[PhD talk] ETH Zurich, Switzerland**, Clotho: Saving Programs from Malformed Strings and Incorrect String-Handling

2018
- **RV 2018, Limassol, Cyprus**, METIS: Resource and Context-Aware Monitoring of Finite State Properties

2019
- **NSDI 2019, Boston, USA**,Deniable Upload and Download via Passive Participation

2020
- **Winter Outing, ETH Zurich**, How (not) to Build Trusted Path
- **NDSS 2020, San Diego, USA**, ProtectIOn: Root-of-Trust for IO in Compromised Platforms
- **CODASY 2020, Online**, ProximiTEE: Hardened SGX attestation by proximity verification

2021
- **[Job Talk, Online] Microsoft Research, Seattle, USA**, Building Trust in Modern Computing Platforms
- **[Job Talk, Online] Dfinity Foundation, Zurich, Switzerland**, Building Trust in Modern Computing Platforms
- **[Job Talk, Online] HP Labs, Bristol, UK**, How (not) to Build Trusted Path
- **[Job Talk, Online] VMWare Research, Palo Alto, USA**, Building Trust in Modern Computing Platforms

Awards and Achievements

2020
- **ETH Spark award 2020**, top 5
- **Best paper award**, CODASPY 2020

2018
- **Best paper award**, RV 2018

2017
- **ETH Spark award 2017**, top 5

2014
- **Best M.Tech thesis award**, IIIT Delhi

2013
- **Awarded Young Achiever**, Accenture Research Labs.

Skills

Coding
- Java, C/C++/Embedded C, Python, Scala, Datalog/Prolog, R, LaTeX

Web Dev
- HTML, CSS, JavaScript, Tomcat Web Server.