

“Be weird. Be random. Be who you are. Because you never know who would love the person you hide.”

Scientific Publications

THESIS

1. Ajith Suresh. *MPCLeague: Robust MPC Platform for Privacy-Preserving Machine Learning*. PhD Thesis, 2021. Under the supervision of Prof. Arpita Patra. Indian Institute of Science (IISc), Bangalore. [PDF]
2. Ajith Suresh. *Fast Actively Secure OT Extension for Short Secrets*. Master Thesis, 2017. Under the supervision of Prof. Arpita Patra. Indian Institute of Science (IISc), Bangalore. [PDF]
3. Ajith Suresh. *Proximity-based Sentiment Analysis with Contextual Phrase Polarity*. Bachelor Thesis, 2014. College of Engineering (CET), Trivandrum.

CONFERENCES & JOURNALS



Publications in cryptography usually order authors alphabetically (using surnames) and conferences ([C]) are more common than journals ([J]). Workshops and affiliated events with proceedings ([W]) are marked with †.

1. [J] Christopher Harth-Kitzerow, Ajith Suresh, Yonqing Wang, Hossein Yalame, Georg Carle and Murali Annavaram. *High-Throughput Secure Multiparty Computation with an Honest Majority in Various Network Settings*. In 25th Privacy Enhancing Technologies Symposium (PETS'25) [PDF]
2. [C] Yaniv Ben-Itzhak, Helen Möllering, Benny Pinkas, Thomas Schneider, Ajith Suresh, Oleksandr Tkachenko, Shay Vargatik, Christian Weinert, Hossein Yalame and Avishay Yanai. *ScionFL: Efficient and Robust Secure Quantized Aggregation*. (Runner-Up Distinguished Paper Award) In 2nd IEEE Conference on Secure and Trustworthy Machine Learning (IEEE SaTML'24) [PDF] [PDF]
3. [J] Vinod Ganapathy, Eikansh Gupta, Arpita Patra, Gokulnath Pillai and Ajith Suresh. *Privadome: Delivery Drones and Citizen Privacy*. In 24th Privacy Enhancing Technologies Symposium (PETS'24) (CORE rank- A) [PDF]
4. [C] Andreas Brüggemann, Oliver Schick, Thomas Schneider, Ajith Suresh and Hossein Yalame. *Don't Eject the Impostor: Fast Three-Party Computation With a Known Cheater*. In 45th IEEE Symposium on Security and Privacy (IEEE S&P'24) (CORE rank- A*) [PDF] [PDF]
5. [C] Gowri R Chandran, Raine Nieminen, Thomas Schneider and Ajith Suresh. *PrivMail: A Privacy-Preserving Framework for Secure Emails*. In 28th European Symposium on Research in Computer Security (ESORICS'23) (CORE rank- A) [PDF]
6. [J] Nishat Koti, Shravani Patil, Arpita Patra and Ajith Suresh. *MPClan: Protocol Suite for Privacy-Conscious Computations*. In Journal of Cryptology (JoC'23) (CORE rank- A*) [PDF]
7. [C] Andreas Brüggemann, Robin Hundt, Thomas Schneider, Ajith Suresh and Hossein Yalame. *FLUTE: Fast and Secure Lookup Table Evaluations*. In 44th IEEE Symposium on Security and Privacy (IEEE S&P'23) (CORE rank- A*) [PDF] [PDF]
8. [W] Till Gehlhar, Felix Marx, Thomas Schneider, Ajith Suresh, Tobias Wehrle and Hossein Yalame. *SafeFL: MPC-friendly framework for Private and Robust Federated Learning*†. In 6th Deep Learning Security and Privacy Workshop (DLSP'23) [PDF]
9. [J] Thomas Schneider, Ajith Suresh and Hossein Yalame. *Comments on “Privacy-Enhanced Federated Learning Against Poisoning Adversaries”*. In IEEE Transactions on Information Forensics & Security (IEEE TIFS'23) (CORE rank- A), In IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP'23) [PDF]












Research work(s) published during PhD. I am the primary author for publications marked with †.







10. [C] Nishat Koti, Arpita Patra, Rahul Rachuri and Ajith Suresh.
Tetrad: Actively Secure 4PC for Secure Training and Inference.[†]
In 29th Network and Distributed System Security Symposium (NDSS'22) (CORE rank- A*)  
11. [C] Arpita Patra, Thomas Schneider, Ajith Suresh and Hossein Yalame.
SynCirc: Efficient Synthesis of Depth-Optimized Circuits for Secure Computation.
In IEEE International Symposium on Hardware Oriented Security and Trust (HOST'21) 
12. [C] Nishat Koti, Mahak Pancholi, Arpita Patra and Ajith Suresh.
SWIFT: Super-fast and Robust Privacy-Preserving Machine Learning.[†]
In 30th USENIX Security Symposium (USENIX'21) (CORE rank- A*)  
13. [C] Patra, Thomas Schneider, Ajith Suresh and Hossein Yalame.
ABY2.0: Improved Mixed-Protocol Secure Two-Party Computation.[†]
In 30th USENIX Security Symposium (USENIX'21) (CORE rank- A*)  
14. [C] Arpita Patra and Ajith Suresh.
BLAZE: Blazing Fast Privacy-Preserving Machine Learning.[†]
In 27th Network and Distributed System Security Symposium (NDSS'20) (CORE rank- A*)  
15. [C] Harsh Chaudhari, Rahul Rachuri and Ajith Suresh.
Trident: Efficient 4PC Framework for Privacy Preserving Machine Learning.[†]
In 27th Network and Distributed System Security Symposium (NDSS'20) (CORE rank- A*) 
16. [J] Megha Byali, Harsh Chaudhari, Arpita Patra and Ajith Suresh.
FLASH: Fast and Robust Framework for Privacy-preserving Machine Learning.
In 20th Privacy Enhancing Technologies Symposium (PETS'20) (CORE rank- A)  
17. [C] Harsh Chaudhari, Ashish Choudhury, Arpita Patra and Ajith Suresh.
ASTRA: High Throughput 3PC over Rings with Application to Secure Prediction.^{††}
In ACM Conference on Cloud Computing Security Workshop (ACM CCSW'19) 

Research work(s) published during M.Tech. (Research). I am the primary author for publications marked with [†].




18. [C] Arpita Patra, Pratik Sarkar and Ajith Suresh.
Fast Actively Secure OT Extension for Short Secrets.[†]
In 24th Network and Distributed System Security Symposium (NDSS'17) (CORE rank- A*)  

WORKSHOPS, SYMPOSIUMS & POSTERS

1. Najwa Aaraj, Abdelrahman Aly, Tim Güneysu, Chiara Marcolla, Johannes Mono, Rogerio Paludo, Iván Santos-González, Mireia Scholz, Eduardo Soria-Vazquez, Victor Sucasas and Ajith Suresh.
FANNG-MPC: Framework for Artificial Neural Networks and Generic MPC.
In TPMPC'24 (Contributed Talk)   
2. Andreas Brüggemann, Thomas Schneider, Ajith Suresh and Hossein Yalame.
Is Everyone Equally Trustworthy in Practice? (Short Talk).
In IEEE S&P'23 (Short Talk) 
3. Gowri R Chandran, Raine Nieminen, Thomas Schneider and Ajith Suresh.
PrivMail: A Privacy-Preserving Framework for Secure Emails (Short Talk).
In IEEE S&P'23 (Short Talk) 
4. Andreas Brüggemann, Thomas Schneider, Ajith Suresh and Hossein Yalame.
Efficient Three-Party Shuffling Using Precomputation.
In ACM CCS'22 (Poster) 
5. Daniel Günther, Marco Holz, Benjamin Judkewitz, Helen Möllering, Benny Pinkas, Thomas Schneider and Ajith Suresh.
Privacy-Preserving Epidemiological Modeling on Mobile Graphs.
In ACM CCS'22 (Poster)  
6. Nishat Koti, Shravani Patil, Arpita Patra and Ajith Suresh.
MPClan: Protocol Suite for Privacy-Conscious Computations.
In ACM CCS'22 (Poster) , In NDSS'22 (Poster) 
7. Ajith Suresh.
MPCLeague: Robust MPC Platform for Privacy-Preserving Machine Learning.
In Doctoral Symposium (AIMLSystems'22) 

8. Nishat Koti, Arpita Patra, Rahul Rachuri and Ajith Suresh.
Tetrad: Actively Secure 4PC for Secure Training and Inference.
In PPML'21 (ACM CCS'21) 
9. Arpita Patra, Thomas Schneider, Ajith Suresh and Hossein Yalame.
ABY2.0: Improved Mixed-Protocol Secure Two-Party Computation.
In PriML'21 (NeurIPS'21), In PPML'21 (ACM CCS'21), In PPML'21 (CRYPTO'21) 
10. Nishat Koti, Arpita Patra and Ajith Suresh.
MPCLeague: Robust and Efficient Mixed-protocol Framework for 4-party Computation.
In IEEE S&P'21 (Poster), In DPML'21 (ICLR'21)  
11. Nishat Koti, Mahak Pancholi, Arpita Patra and Ajith Suresh.
SWIFT: Super-fast and Robust Privacy-Preserving Machine Learning.
In ARCS'22 (Symposium), In DPML'21 (ICLR'21), In PriML/PPML'20 (NeurIPS'20) 
12. Harsh Chaudhari, Ashish Choudhury, Arpita Patra and Ajith Suresh.
ASTRA: High Throughput 3PC over Rings with Application to Secure Prediction.
In PPML'19 (ACM CCS'19) 

PREPRINTS & MANUSCRIPTS

1. Najwa Aaraj, Abdelrahman Aly, Tim Güneysu, Chiara Marcolla, Johannes Mono, Rogerio Paludo, Iván Santos-González, Mireia Scholz, Eduardo Soria-Vazquez, Victor Sucasas and Ajith Suresh.
FANNG-MPC: Framework for Artificial Neural Networks and Generic MPC.
Under Submission 
2. Felix Marx, Thomas Schneider, Ajith Suresh, Tobias Wehrle, Christian Weinert and Hossein Yalame.
WW-FL: Secure and Private Large-Scale Federated Learning.
Under Submission 
3. Daniel Günther, Marco Holz, Benjamin Judkewitz, Helen Möllering, Benny Pinkas, Thomas Schneider and Ajith Suresh.
Privacy-Preserving Epidemiological Modeling on Mobile Graphs.
Under Submission 
4. Soumyadyuti Ghosh, Boyapally Harishma, Ajith Suresh, Arpita Patra, Soumyajit Dey, and Debdeep Mukhopadhyay.
Precision and Privacy: Advancing Real-Time Pricing in Smart Grids with Secure Computation.
Under Submission