Security Sub-Project (Prof. Harshan Jagadessh)

Awards:

Best Research Demo award at COMSNETS 2020 on Implementation of 5G Authentication and Key Agreement Protocol on XBee networks

Recent Publications:

1. **Non-Coherent Fast-Forward Relays for Full-Duplex Jamming Attack**," accepted for presentation at IEEE GLOBECOM 2021, Madrid, Spain, 2021.
2. **Minimal Overhead ARQ Sharing Strategies for URLLC in Multi-Hop Networks**, IEEE Vehicular Technology Conference (VTC2021-Spring), Helsinki, 2021.
3. **On Opportunistic Selection of Common Randomness and LLR Generation for Algebraic Group Secret-Key Generation**, IEEE Vehicular Technology Conference (VTC2021-Spring), Helsinki, 2021.
4. **Fast-Forward Relaying Scheme to Mitigate Jamming Attacks by Full-Duplex Radios**, in the Proc. of IEEE PIMRC 2020.

Publications

On arXiv:

1. Shilpi Mishra, J. Harshan and Ranjitha Prasad, ``Path-Aware OMP Algorithms for Provenance Recovery in Vehicular Networks," on arXiv, September 2021

Journals:

1. Murali Krishnan K H and J. Harshan ``On the Existence of XOR-Based Codes for Private Information Retrieval with Private Side Information," Special Issue on Information-Theoretic Approach to Privacy and Security, Entropy, Vol. 23, Issue 10, 2021
2. Jaya Goel and J. Harshan, ``Listen to Others' Failures: Cooperative ARQ Schemes for Low-Latency Communication over Multi-Hop Networks," IEEE Transactions on Wireless Communications, Vol. 20, No. 09, pp. 6049--6063, Sept. 2021
3. Vivek Chaudhary and J. Harshan, ``Fast-Forward Mitigation Schemes for Cognitive Adversary," in IEEE Transactions on Cognitive Communications and Networking, March 2021.
4. J. Harshan, Rohit Joshi and Manish Rao ``Group Secret-Key Generation using Algebraic Rings in Wireless Networks," in IEEE Transactions on Vehicular Technology, Vol. 70, No. 02, pp. 1538--1553, Feb. 2021.
5. J. Harshan, Amogh Vithalkar, Naman Jhunjhunwala, Manthan Kabra, Prafull Manav, and Yih-Chun Hu,``Double-Edge Embedding Based Provenance Recovery for Low-Latency Applications in Wireless Networks," IEEE Transactions on Dependable and Secure Computing, 2020. [Impact factor 6+]

Conference papers:

1. Vivek Chaudhary and J. Harshan, ``Non-Coherent Fast-Forward Relays for Full-Duplex Jamming Attack," to appear in IEEE GLOBECOM 2021, Madrid, Spain, 2021. Also available online at arXiv
2. Jaya Goel and J. Harshan, ``Minimal Overhead ARQ Sharing Strategies for URLLC in Multi-Hop Networks," IEEE Vehicular Technology Conference (VTC2021-Spring), Helsinki, 2021.
3. Rohit Joshi and J. Harshan, ``On Opportunistic Selection of Common Randomness and LLR Generation for Algebraic Group Secret-Key Generation," IEEE Vehicular Technology Conference (VTC2021-Spring), Helsinki, 2021.
4. Vivek Chaudhary and J. Harshan, ``Fast-Forward Relaying Scheme to Mitigate Jamming Attacks by Full-Duplex Radios ," in the Proc. of IEEE PIMRC 2020.
5. Jaya Goel and J. Harshan, ``On the Optimal ARQ Distribution for Low-Latency Communication over Line-of-Sight Dominated Multi-Hop Networks," to appear in the Proc. of International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2020) , Volos, Greece, 2020.
6. J. Harshan, Amogh Vithalkar, Naman Jhunjhunwala, Manthan Kabra, Prafull Manav, and Yih-Chun Hu,``Bloom Filter Based Low-Latency Provenance Embedding Schemes in Wireless Networks," in the Proc. of IEEE Wireless Communications and Networking Conference (IEEE WCNC), 2020.
7. S.V. Sriraam, Suraj Sajeev, Rohit Joshi, Amogh Vithalkar, Manish Bansal, and J. Harshan, ``Implementation of 5G Authentication and Key Agreement Protocol on Xbee Networks," (Demo Paper) in the Proc. of COMSNETS 2020, Bangalore, India
8. Manish Rao and J. Harshan, ``Low-Latency Exchange of Common Randomness for Group-Key Generation**,"** in the Proc. of EEE PIMRC 2019, Istanbul, Turkey.
9. Manish Rao and J. Harshan,``Practical Physical-Layer Group Secret-Key Generation in Three-User Wireless Networks," in the proceedings of International Conference on Signal Processing and Communications (SPCOM) 2018, Bangalore, India, July 2018