JOYDEEP PAL

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Academic Achievements and Scholarships

- Granted **CNI** fellowship: August 2021 and August 2022
- GATE (EC) 2017: **AIR 754. GATE Score: 981**
- **AIEEE:** 2012. AIR 3330
- Awarded the SHE scholarship from CBSE for being in top 0.1% of students in CBSE Class XII Board Exams.

Technical Strengths

- **Programming:** P4, C/C++. Python, ROS2, Octave/MATLAB, Bash scripting
- **Software Tools:** Arduino IDE, SimuLink
- **Miscellaneous:** Linux, SSH, git, LaTeX, Markdown, VM, Docker

Professional Skills

- Research and analysis
- Teaching and mentoring
- Scientific writing
- Critical thinking

Industrial Experience

- **Reliance Jio Infocomm:** 45 Day industrial training on *telephone exchange*, *main distribution frames* and *switching*.
- **Elin Electronics:** Workshop on wireless technologies, IoT and 5G
- **Avanta, Delhi:** Built and developed firmware using custom-made electronics for Home Automation systems for business centres

ABOUT ME

As a Ph.D. fellow in the Electronics Systems Engineering department at IISc Bangalore, I specialize in building novel networking paradigms on programmable hardware, with works in the field of Tactile Internet, Time-Sensitive Networks and P4. My research is focused on addressing bounded latency and packet loss in Layer-2 based networks and developing new techniques to develop proof-of-concepts of IEEE standards-based mechanisms to acheive deterministic communication. I have a strong background in programming, hardware-software co-design, and packet scheduling in networking. I have also worked on energy-aware autonomous multi-drone and ML projects.

RECENT PUBLICATIONS

- Iyengar, Srinivasan, Ravi Raj Saxena, Joydeep Pal, Bhawana Chhaglani, Anurag Ghosh, Venkata N. Padmanabhan, and Prabhakar T. Venkata. "Holistic energy awareness for intelligent drones." In Proceedings of the 8th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, pp. 41-50. 2021.
- Rana, Soumya Kanta, Himanshu Verma, Joydeep Pal, Deepak Choudhary, T. V. Prabhakar, and Chandramani Singh. "Enhancing Reliability of Scheduled Traffic in Time-Sensitive Networks using Frame Replication and Elimination." In 2023 IEEE 29th International Symposium on Local and Metropolitan Area Networks (LANMAN), pp. 1-6. IEEE, 2023.
- Polachan, Kurian, Joydeep Pal, Chandramani Singh, T. V. Prabhakar, and Fernando A. Kuipers. "TCPSbed: A modular testbed for tactile Internet-based cyber-physical systems." IEEE/ACM Transactions on Networking 30, no. 2 (2021): 796-811.
- Polachan, Kurian, Joydeep Pal, Chandramani Singh, and T. V. Prabhakar. "Assessing Quality of Control in Tactile Cyber–Physical Systems." IEEE Transactions on Network and Service Management 19, no. 4 (2022): 5348-5365.
- **Other publications**: kanishakvaidya.github.io/phd-progress/publications

PROJECTS

- Time-Sensitive Networks - Achieve and demonstrate deterministic networking by building algorithms and mechanisms on programmable networking hardware such as SmartNICs using P4 and C.
- Tactile Internet - Design and develop a real-time teleoperation testbed consisting of haptic devices, robotic arm and TSN switches to demonstrate Tactile Internet applications such as Telesurgery.
- **Other projects:** joygetsit.github.io/portfolio/

EDUCATION

PhD, M.Tech(Res)	IISc Bangalore	Aug 2018 - Present	CGPA: 7.2/10
B.Tech	DTU, Delhi	Aug 2012 - Jul 2016	69.2%
10+2	Apeejay School, Sheikh Sarai, Delhi	2010-12	95%
Matriculation	Apeejay School, Sheikh Sarai, Delhi	2008-10	CGPA: 9.4/10