Sandip Das (Ph.D)
Postdoctoral Researcher
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CAREER OBJECTIVE

- Looking forward to build a career on research in a progressive and prestigious organization, where I could leverage my abilities, interest and knowledge for achievement of institutional and personal goals.

ACADEMIC DETAILS

Qualification	University	Year	Percentage of marks
Postdoctoral Researcher	Trinity College Dublin	Dec 2021 - Present	
Ph.D	Trinity College Dublin	May 2017 - May 2021	-
M.S	Indian Institute of Technology, Kharagpur	Aug 2012- Sept 2016	GPA - 8.55
B.TECH	West Bengal University of Technology	2007-2011	GPA - 8.32
Higher secondary	West Bengal Council of Higher Secondary Education (WBCHSE)	2005-2007	77%
Secondary	West Bengal Board of Secondary Education	2004-2005	75.75%

FIELDS OF INTEREST

- Wireless and optical communications, next-generation wireless-optical converged networks (5G and beyond), physical and MAC layer implementation techniques, software and hardware programming.
- Digital electronics, circuit design, Digital Signal Processing (DSP) & FPGA

TECHNICAL SKILLS

- **Languages:** C, C++, MATLAB, VHDL, Vivado High Level Synthesis (HLS) (C-based), System generator.
- **Tools:** Xilinx-EDK, Eclipse-SDK, OMNET++, LaTeX, MS Word, MS Excel.
- **OS:** Windows, Linux
- **Summary of Skills:**
  - Experience on working with next-generation enhanced optical-wireless converged network architectures for 5G and beyond using theoretical analysis, simulation and real-time testbed implementation.
  - Experience in designing in DSP and ARM based SoC platforms, RTOS, RT-Linux, experience in programming LTE Layer 1 protocol stack in these platforms.
  - Experience of designing in FPGA of PHY-MAC algorithms for next generation wireless communication technologies such as 802.11 a/b/g, LTE (Phy).
  - Experience on development of prototype and hardware-Software co-simulation with FPGA.
  - Experience in C for firmware development for embedded Systems
  - Experience with MATLAB and Simulink for modeling and simulation. Experience in GUI development in MATLAB.

EXPERIENCE DETAILS

- **CONNECT Centre for Future Networks, Trinity College Dublin, Ireland** (Postdoctoral Researcher, Project: Beyond 5G, Intel Research and Science Foundation Ireland (SFI))
  (Collaborator: Intel Research, Principal Investigator: Dr. Marco Ruffini, Dec 2021 - Present)

- Research on Beyond 5G, Multi-tenant Low Latency Architecture

- **CONNECT Centre for Future Networks, Trinity College Dublin, Ireland** (Ph.D, O'share Project, SFI)
  (Supervisor: Prof. Marco Ruffini, May 2017 - Dec 2021)
  - Research on enhanced Passive Optical Network (PON) architectures for converged access networks for 5G and beyond

- **NDRC, Dublin** (Internship Trainee at NDRC Pre-commercialization Program)
  (January 2019 - June 2019)
  - Training on pre-commercialization of research outcomes to entrepreneurship.

- **The Center of Excellence in Wireless and Information Technology (CEWIT), Chennai, INDIA** (Research Engineer)
  (September 2016 - April 2017)
  - LTE layer 1 and layer 2 protocol stack development in System on Chip (SoC) devices, DSP, RTOS platforms. testbed development for 5G research.

- **Indian Institute of Technology, Kharagpur, West Bengal, INDIA** (MS by Research)
  (Supervisor: Prof. Suvra Sekhar Das, August 2012 - August 2016)
  - Thesis Title: " FPGA Development of PHY-MAC protocol catering to OFDMA based systems"

- **Indian Institute of Technology, Kharagpur, West Bengal** (Junior Research Fellow)
  (Supervisor: Prof. Suvra Sekhar Das, March 2015 - September 2016)
  - Project Title: Suitability of free space optical communication for on-board data handling in satellite

- **Indian Institute of Technology, Kharagpur, West Bengal** (Junior Project Officer)
  (Supervisor: Prof. Suvra Sekhar Das, Sept 2014 -Feb 2015)
  - Project Title: Development of interference mitigation methods through base station cooperation in next generation wireless broadband mobile communications networks.

- **Indian Institute of Technology, Kharagpur, West Bengal** (Junior Project Officer at Vodafone-IIT centre for Excellence in Telecommunications (VICET))
  (Supervisor: Prof. Suvra Sekhar Das, Dec 2011 - August 2014)
  - Project Title: VDA-9: FPGA development of MIMO-OFDMA testbed.

GRANTS and AWARDS

- **Next Generation Internet (NGI) Explorer Grant:** Funding Agency: Europian Union (EU), Grant no.- 82513, Amount: 6973 EURO.
  `https://explorers.ngi.eu/mission-3`

- **Best paper award in ONDM conference 2021** for the paper titled "Optimal virtual PON slicing to support ultra-low latency mesh traffic pattern in MEC-based Cloud-RAN"
  `https://connectcentre.ie/news/sandip-wins-best-student-paper-award-at-ondm21/`

INTERNATIONAL COLLABORATIONS

- University of Southern California, San Diego, United States.
- Intel Research, Ireland
- University of Arizona, United States.
- Columbia University, United States.

ACADEMIC CONTRIBUTIONS

Tutorials and invited Talks:

- **Invited talk at IEEE YPAG Kharagpur section:** *Date: 21st May 2021 at IIT Kharagpur*
  Title: Next-Generation Fronthaul and Backhaul architectures for Converged access Networks in 5G and Beyond

Technical Processing Committee (Conferences):

- IEEE International Conference on Communications (ICC) 2022, Optical Network Design and Modelling 2020, 2019, 2018.

PUBLICATIONS (Few Significant):

Journal Publications:

1. **Sandip Das**, Frank Slyne, and Marco Ruffini. "Optimal Slicing of Virtualised Passive Optical Networks to Support Dense Deployment of Cloud-RAN and Multi-Access Edge Computing." IEEE Network, vol. 36, no. 2, pp. 131-138, March/April 2022, doi: 10.1109/MNET.004.2100603.

2. **Sandip Das**, Frank Slyne, Aleksandra Kaszubowska, and Marco Ruffini. "Virtualized EAST–WEST PON architecture supporting low-latency communication for mobile functional split based on multiaccess edge computing." IEEE/OSA Journal of Optical Communications and Networking 12, no. 10 (2020): D109-D119.

3. **Sandip Das**, Marco Ruffini. "A variable rate fronthaul scheme for cloud radio access networks." Journal of Lightwave Technology 37.13 (2019): 3153-3165.

Conference Publications:

1. **Sandip Das**, Frank Slyne, Daniel Kilper, Marco Ruffini, "Schedulers Synchronization Supporting Ultra Reliable Low Latency Communications (URLLC) in Cloud-RAN over Virtualised Mesh PON", ECOC 2022 (Accepted, to appear).

2. **Sandip Das**, Marco Ruffini, "Optimal virtual PON slicing to support ultra-low latency mesh traffic pattern in MEC-based Cloud-RAN," 2021 International Conference on Optical Network Design and Modeling (ONDM), 2021, pp. 1-5 **(Best paper award)**.

3. **Sandip Das**, and Marco Ruffini. "PON virtualisation with EAST-WEST communications for low-latency converged multi-access edge computing (MEC)." In Optical Fiber Communication Conference, pp. M2H-3. Optical Society of America, 2020.

4. Yao Li, Mariya Bhopalwala, **Sandip Das**, Jiakai Yu, Weiyang Mo, Marco Ruffini, and Daniel C. Kilper. "Joint optimization of BBU pool allocation and selection for C-RAN networks." In Optical Fiber Communication Conference, pp. Th1B-5. Optical Society of America, 2018.

5. Jiakai Yu, Yao Li, Mariya Bhopalwala, **Sandip Das**, Marco Ruffini, and Daniel C. Kilper. "Midhaul transmission using edge data centers with split PHY processing and wavelength reassignment for 5G wireless networks." 2018 International Conference on Optical Network Design and Modeling (ONDM). IEEE, 2018.

6. **Sandip Das**, Suvra Sekhar Das, and Indrajit Chakrabarti. "Hardware implementation of MIMO OFDMA test bed and its application towards channel characterization on indoor LAB test environment." In 2016 Twenty Second National Conference on Communication (NCC), pp. 1-6. IEEE, 2016.

STRENGTHS

- Hard Work, Positive Attitude, Consistency, Cooperative with co-members.

DECLARATION

I hereby declare that the information stated in the resume is true to the best in my belief and knowledge.

Sandip Das