Pulok Tarafder

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Research Interests

Massive MIMO, mmWave, Deep Reinforcement Learning, Federated Learning, CRAN, Full-Duplex

Education

Chosun University, Gwangju, South Korea

- Masters in Computer Engineering, Grade 4.04/4.5 (expected graduation: Dec 2022)
- Advisor: Wooyeol Choi

Brac University, Dhaka, Bangladesh

- Bachelor of Science in Electrical and Electronic Engineering (Apr 2019)
- Grade: 3.07/4.0 (3.53/4 in 300 & 400 level courses)
- Senior thesis: ***Comprehensive mathematical analysis and simulation design of a microwave wireless power transmission system***, highest honors

Research Experience

Graduate Research Assistant at Smart Networking Lab

Dept. of Computer Engineering, Chosun University (Mar 2021 - present)

- Perform research on mmWave MAC protocols, application of deep reinforcement learning and federated learning in full-duplex massive MIMO beamforming
- Conference reviewer: ICAIIC 2022

Research Assistant at Control & Applications Research Centre

Dept. of Electrical and Electronic Engineering, Brac University (May 2019 - Feb 2021)

- PSpice Instructor for EEE202 Lab
- Prepared project proposals, project reports, annual reports, reviewed domestic conference papers
- Designed and implemented a torque sensor circuit for the project *Digitalization and Development of Torque Sensor Based Control System of Solar Powered Electric Wheel-chair with a Dedicated Solar Charger Kit*
- Worked on the development and troubleshooting of the project *Double Burner Smart Electric Stove Powered by Solar Photovoltaic Energy*

Skills

- **Software**: Python (TensorFlow, Keras, PyTorch, OpenAI Gym, NumPy), Matlab, LaTeX, Git, Java, Ansys Electronics (HFSS), Proteus, PSpice, Microwind (layout), DSCH2, Arduino
- **Hardware**: Advance Circuits, Arduino-based Hardware, Microcontroller/Microprocessor-based IoT Devices

[1] Updated April 20, 2022

Publications

2. **A Comparative Study on Centralized MAC Protocols for 60 GHz mmWave Communications**. In proceedings of the 12th International Conference on Information and Communication Technology Convergence (ICTC'2021), IEEE, Jeju Island, South Korea. ***DOI***

1. **A qualitative study of current trends in microwave wireless power transmission including current advancements and challenges**. In proceedings of the IEEE Region 10 Symposium (TENSYMP'2019), IEEE, Kolkata, India. ***DOI***

Academic Projects

5. Self-Balancing Autonomous Unicycle using Raspberry Pi
   Description: EEE414 Digital System Design Laboratory project. Designed and developed a novel way to balance a unicycle using Kalman filter algorithm on the gyroscopic data ensuring that the tilt factor is minimized.

4. Arithmetic Logic Unit
   Description: EEE412 VLSI Design Laboratory project. Designed an ALU circuit from scratch using Export DSCH2.

3. A Solar Tracker Using ATMega32
   Description: EEE365 Microprocessors course project. Developed a solar tracker to increase the efficiency by automatically moving the solar panel by tracking the sun.

2. The Temperature Box
   Description: EEE305 Control System project. This project involved design and implementation of a feedback temperature control system.

1. Implemented 4 variable Boolean function on PCB using Proteus.

Organization and Outreach Activities

- Attended IEEE ICC, Seoul, South Korea (16–20 May 2022)
- IEEE Graduate Student Member (Sept 2021 - present)
- Event Organizer, Brac University Electrical and Electronic Club (Feb 2014 - Dec 2018)
- Creative Designer, Robotics Club of Brac University (Jan 2014 - Dec 2016)
- Math and ICT tutor at Swarabarna Academic Care, Dhaka, Bangladesh (Nov 2015 - Apr 2017)
- Private O'Levels and A'Levels Math, Physics and Chemistry tutor (Dec 2016 - Feb 2021)

Achievements

- 1st runner-up at Automated Guided Vehicles (AGV) showcase competition, Techshopbd, Dhaka, Bangladesh (Nov 2015)
- Full-ride Research Assistant Scholarship for masters at Chosun University, Gwangju, South Korea