Bariq S. Firmansyah

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Research Interests

Digital Health.

Education

Doctor of Philosophy, Rice University — Houston, TX
Electrical and Computer Engineering — *2022 – 2027 (Expected)*

Bachelor of Science, **Institut Teknologi Bandung (ITB)** — Bandung, Indonesia
Telecommunications Engineering; GPA: 3.76/4.0 (**Cum Laude, Rank: 1st/31**) — *2016 - 2021*

Erasmus+ Student Mobility Program, **Warsaw University of Technology** — Warsaw, Poland
Electronics and Informatics Technology Department; Full-ride scholarship from the EU. — *Spring 2019*

Publication

1. Muhammad Iqbal Rochman, Arvind Narayanan, Ahmad Hassan, Bariq S. Firmansyah, Vanlin Sathya, Monisha Ghosh, Zhi-Li Zhang, Feng Qian, **A Comparative Measurement Study of Commercial 5G mmWave Deployments**, Proc. IEEE INFOCOM '22, Virtual Conference.
2. Ray-Guang Cheng, Chi-Ming Yang, Bariq S. Firmansyah, Ruki Harwahyu, **Uplink OFDMA-based Random Access Mechanism with Bursty Arrivals for IEEE 802.11ax Systems,** IEEE Networking Letters (Volume: 4, Issue: 1, March 2022).

Research Experience

GIK Lab – The University of Chicago, Remote Research Assistant — *Sept '20 – Jan '22*
Advisor: Monisha Ghosh

- LTE-LAA and Wi-Fi Coexistence in 5 GHz band.
  - Performed simulation of LAA & Wi-Fi to study how TxOP and energy detection threshold can impact their throughput and latency.
  - Implemented dynamic channel bonding capability for Wi-Fi in ns-3.
- Performance analysis of commercial 5G mmWave deployments
  - Measured, analyzed and compared the performance between two different operators.

Institut Teknologi Bandung, Bachelor Thesis — *Sept '20 – Mar '21*
Advisor: Irma Zakia

- Designed a graph-based clustering and pilot assignment for scalable cell-free massive MIMO systems.
- The proposed algorithm takes the traffic load constraint into account and is successful in preventing the AP from overloading.

National Taiwan Univ. of Science and Tech., Summer Research Intern — *Jul '20 - Aug '20*
Advisor: Ray-Guang Cheng

- Performed simulation in MATLAB and derived an accurate analytical model of Uplink OFDMA random access with bursty arrival for IEEE 802.11ax systems.

Work Experience

Ministry of Tourism and Creative Economy of Indonesia, Independent Consultant — *Dec '21- Jun '22*

- Made a report about how digitalization can accelerate creative industries growth in Indonesia.

Institut Teknologi Bandung, Teaching Assistant — *Fall '19*

- Led a team of 7 assistants assisting *ET3005: Discrete-Time Signal Processing* laboratory to telecommunications engineering students.
- Created problems and solutions for pre-laboratory exams; instructed and graded laboratory works.

Inmarsat Indonesia, Engineering Intern — *Jul '19 - Sept '19*

- Developed Java-based API client apps to retrieve terminal's data for Inmarsat's Machine-to-Machine service. I also made a graphical user interface app to make the program pretty.
- Data retrieved are stored in database using MySQL.

Awards

Graduated Bachelor of Science with Cum Laude Distinction — *Apr '21*

Best Presentation, Winter Seminar on Energy Science 2021 @ Kyoto University — *Feb '21*
My team delivered a presentation on energy planning and policy in a fictional country in which the geographical and climate description is provided.

Sakura Science Exchange Program Scholarship — *Oct '19*
Scholarship granted by Japan Science and Technology Agency for international students to visit various research laboratories in Japan for one week.

Erasmus+ International Credit Mobility Scholarship — *Feb '19*
Selected for the Erasmus+ scholarship supported by the European Union during my exchange period in Warsaw University of Technology with full funding that covers tuition fees, travel expenses, and monthly stipend.

3rd Winner, Telecommunications Engineering Most Outstanding Student Award — *Feb '19*
Selected based on academic performance and extracurricular activities.

Unggulan Scholarship — *Jul '17*
Full-ride scholarship granted by the Ministry of Education of Indonesia for outstanding students.

Skills

Programming and Scripting	MATLAB, C/C++, ns-3, Java, SQL, Python, Bash.
Hardware	USRP, Arduino, Raspberry Pi, DSK TMS320C6x.
Language	Indonesian (Native), Javanese (Native), English (Fluent).