Taran Anusorn

Graduate Student

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Current Research Interests

Advancing next-generation communication and sensing technologies through innovative solutions:

- Heterogeneously Integrated RF/mmW/THz Systems
- CMOS+X RF ASICs
- RF Acoustics and MEMS
- Beamforming and Wavefront Engineering
- 3D-Printable Devices

Education

University of Texas at Austin — Austin, TX, USA.
Master of Science in Electrical and Computer Engineering — Aug 2024 - Present

- Academic track: Electromagnetics and Acoustics
- GPAX: 4.00/4.00

Chulalongkorn University — Bangkok, Thailand
Bachelor of Engineering in Electrical Engineering (1st class honors) — July 2019 - July 2023

- Elective specializations: Communications and Control Systems
- GPAX: 3.94/4.00
- Senior project: Design and Development of Reflecting Metasurfaces for 5G and Beyond Wireless Communication Systems (Collaborated with the National Electronics and Computer Technology Center)
- Senior project advisors: Dr.Panuwat Janpugdee, Dr.Suwit Kiravittaya, Dr.Paramin Sangwongngam

Honors

Graduate Fellowship in Engineering Acoustics — 2025 - 2026
Elizabeth L. and Russell F. Hallberg Foundation

- Awarded competitive fellowship supporting graduate research in engineering acoustics, recognizing academic excellence and advancement in the field of electrical and mechanical engineering.

Anandamahidol Scholarship — 2024 - 2029
Anandamahidol Foundation

- Fully funded scholarships, granted annually, for young Thai students to pursue graduate studies abroad in eight fields of studies, including medicine, science, engineering, social sciences, arts and humanities, agriculture, dentistry, and veterinary medicine.
- Only one outstanding student is selected for each field per year.

Professional Experiences

Research Engineering/Scientist Assistant — Aug 2024 - Present
Microelectronics Research Center, The University of Texas at Austin — *Austin, TX, U.S.A.*

- Design and characterize SAW and BAW filters for FR3 and mmWave applications (PI: Dr.Ruochen Lu).
  - EM-Acoustic multiphysics co-design and co-simulation
  - In-house microfabrication
  - Advanced RF measurements (at both room and cryogenic temperatures)
- Oversee three undergraduate research projects:
  - Thin-film $LiNbO_3$ Ansiotropic Material Characterization Using On-chip Coplanar Waveguides
  - Demonstration of BAW-integrated Colpitts Oscillator
  - RF Acoustic Delay Lines for True Time Delay Beamforming Applications

Independent Researcher July 2023 - Aug 2024
Department of Electrical Engineering, Chulalongkorn University *Bangkok, Thailand*

- Designed a 3D-printable THz lens antenna under the supervision of Dr. Nutapong Somjit (Collaborated with University of Leeds, Beijing Normal University, and KTH Royal Institute of Technology).
  - 3D-printable material characterization
  - Graded index profile utilizing effective permittivity theory
  - FEM analysis of complicated 3D EM structures
- Investigated the utilization of bi-characteristic transmission line (BCITL) model under the supervision of Dr. Danai Torrungrueng. (In collaboration with King Mongkut's University of Technology North Bangkok and Rajamangala University of Technology Lanna)
  - Theoretical formulation
  - Designed devices for a proof of concept: novel two-port antennas and a miniaturized power divider

Research Assistant Intern May - July 2022
National Science and Technology Development Agency (NSTDA) *Pathum Thani, Thailand*

- Designed and developed the visible light communication system using a Raspberry Pi camera for an indoor positioning system under the supervision of Dr.Pornanong Pongpaibool.

Publications

Journal Articles

- T. Anusorn, O. Barrera, J. Kramer, I. Anderson, Z. Yao, V. Chulukhadze, and R. Lu, **"Practical Demonstrations of FR3-Band Thin-Film Lithium Niobate Acoustic Filter Design"** *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, doi: 10.1109/TUFFC.2025.3632215.
- O. Barrera, T. Anusorn, S. Cho, J. Kramer, V. Chulukhadze, T. -H. Hsu, J. Campbell, I. Anderson, and R. Lu, **"Frequency and Bandwidth Design of Millimeter Wave Thin-Film Lithium Niobate Acoustic Filters"** *IEEE Microwave and Wireless Technology Letters*, doi: 10.1109/LMWT.2025.3559400.
- T. Anusorn, S. Korananan, P. Janpugdee, and D. Torrungrueng, **"Compact CCITL-Inspired Power Dividers Using Multi-section Transmission Lines,"** *International Journal of RF and Microwave Computer-Aided Engineering*, vol. 2024, no. 1, 2024, doi: 10.1155/mmce/2587550.
- T. Anusorn, K. Sukpreecha, S. Kawdungta, P. Janpugdee, and D. Torrungrueng, **"Parameter Extraction of Asymmetric Reciprocal Transmission Lines (ARTLs) from Scattering Parameters with Transmission-Line-Based Analyses of Differential Antennas,"** *IEEE Access*, vol. 12, pp. 141052-141063, 2024, doi: 10.1109/ACCESS.2024.3466300.

International Conferences

- N. Ngamthanacom, T. Anusorn, R. Viratikul, N. Chudpooti, P. Janpugdee, and N. Somjit, **"All-Dielectric Frequency Selective Surface Using 3D- Printable Material for Sub-THz Applications,"** in *2024 Research, Invention, and Innovation Congress: Innovative Electricals and Electronics (RI2C)*, Bangkok, Thailand, 2024, pp. 152-155, doi: 10.1109/RI2C64012.2024.10784337.
- T. Anusorn, P. Janpugdee, S. Kiravittaya, and P. Sangwongngam, **"Dual-Polarized Phase-Gradient Reflecting Metasurface for 5G mmWave Coverage Improvement,"** in *2023 IEEE International Symposium On Antennas And Propagation (ISAP)*, Kuala Lumpur, Malaysia, 2023, pp. 1-2, doi: 10.1109/ISAP57493.2023.10388656.

Skills and Computer Literacy

High Frequency Measurement	Vector Network Analyzer, Cryogenic Probe Station
Material Characterization	Optical Profilometer
Circuit Design	PathWave ADS, Cadence Virtuoso, LTSpice
FEA Software	Ansys HFSS, COMSOL, CST MWS
Computer Programming	MATLAB, Python
Graphic and Document	LaTeX, MS Office, Jekyll, AutoCAD

Relevant Courseworks

- Electromagnetics, Nonlinear/Ultrafast Optics, Quantum Theory, Physical Acoustics
- Microwave Engineering, Principles of Antennas, Analog IC Design

- Mobile Communication and Networking, Optical Fiber Communication
- Integrated Circuit Fabrication, Electronic Packaging and Thermal Management
- Artificial Intelligence for Engineering, Heuristic Optimization, Stochastic Processes, Industrial Automation

Extracurricular Activities and Volunteers

Student Ambassador Jun 2025
IEEE International MTT Symposia (IMS)
- Served as a student volunteer
- Attended MTT-S 6G Summer School at Keysight Technologies, Santa Rosa, CA

Lab Teaching Assistant Volunteer (ECE383V - RF/Microwave Engineering) Jan - May 2025
Chandra Family Department of Electrical and Computer Engineering, The University of Texas at Austin
- Helped Dr.Ruochen Lu and a TA redesign lab sessions and directions.
- Hold lab sessions with the TA (*won the top TA Award*).

Teaching Assistant Volunteer (2102221 - Engineering Electromagnetics) Jan - May 2024
Department of Electrical Engineering, Chulalongkorn University
- Performed tutorial sessions (course recaps and exercises).
- Graded exams and homework.
- Prepared a course project regarding the propagation of plane wave in multiple media.

Summer Volunteer Camp Director Feb - May 2023
KH50 Volunteer Camp, Residence of Chulalongkorn University Volunteer Club
- Planned and organized a summer volunteer camp in Udon Thani province, Thailand, with 30 student staff and 50 ordinary participants.
- Raised 400k THB (12k USD) in funds.
- Coordinated with both private and government agencies to achieve our goal of transforming an empty area into an interactive learning space, constructing a multipurpose building, and conducting inspiring educational activities for a rural village school.

Club President Jun 2021 - Jun 2022
Residence of Chulalongkorn University Volunteer Club
- Organized multiple volunteer activities, including three volunteer camps and online workshops during the COVID-19 pandemic
- Managed 500k THB (15k USD) club budget.

Event Creator Team Member Dec 2021 - Mar 2022
NITAD 18 Engineering Exhibition
- Conceived and planned multiple online events in the engineering student exhibition during the COVID-19 pandemic, including online showcases of engineering projects, informative engineering talk shows and podcasts, and interactive hands-on workshops tailored for high school students.

Physics Instructor Volunteer Aug 2021
Engineering Student Committee, Chulalongkorn University
- Prepared and delivered a concise preparatory physics course to over 100 enthusiastic freshman engineering students.
- The course primarily focused on calculus-based kinematics and kinetics, while also offering tips and tricks to succeed in college-level physics studies.

Corporate Social Responsibility (CSR) Team Member Jul 2020 - Jun 2021
Engineering Student Committee, Chulalongkorn University
- Collaborated with the team to carry out a variety of CSR activities, which included two volunteer camps, an online workshop focusing on the utilization of solar powered water pumps for rural areas, and activities involving the construction of interactive bookshelves for schools.
- Coordinated with private companies for sponsorships.