NGUYEN Tran Quang Khai

04/09/1994
Vietnamese

CONTACT

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EDUCATION

- 3rd year *PhD candidate* on Radio Frequency engineering, Université Côte d'Azur
- *Engineering Degree (2017)* in Telecommunications Tech. from Bach Khoa University (PFIEV) – 1st ranking
- Addendum CTI for *Engineering Degree (2017)* from IMT Atlantique

SKILLS

RF Hardware tools:
- Vector Network Analyzer
- Spectrum Analyzer
- Anechoic Chamber
- Satimo Starlab Station

Software tools:
- EM simulators: HFSS/CST
- Matlab/Python
- Optenni Lab
- KiCAD
- ADS
- Keil C/Arduino IDE

LANGUAGES

- *English:* Influent
- *French:* Intermediate
- *Vietnamese:* Native

HOBBIES

Reading
Traveling
Swimming

RF SYSTEM ENGINEER

PROFESSIONAL EXPERIENCES

- **PhD project at 5G-Millimeter Wave** *(01/2019 – present)*: Antenna-in-Packet oriented design using low-cost industrial PCB stack-up specifications. Different types of feeding methods for patch antenna are studied. Radiation properties of patch elements in a 4×1 array are measured separately in anechoic chamber and 3D scanner with/without human hand to evaluate the scattering effects of fingers. The final design integrates Anokiwave phase-shifter working at $24.25GHz - 27.5GHz$.
  - EM simulator *HFSS*
  - PCB design *KiCAD*
  - Feeding network design *ADS*
  - NSI 3D Scanner
  - Spectrum analyser
  - Anechoic chamber
- **PhD project at 5G-sub 6Ghz** *(09/2017 – present)*: The constrain is that the full screen design of modern mobile phone consumes the clearance space for antenna. The antenna system is designed to cover 4G bands $690MHz - 960MHz$ and $1.7GHz - 2.7GHz$, plus 5G band $3.3GHz - 3.8GHz$ To achieve the global optimal efficiency, the matching network is optimized together with antenna geometry using Particle Swam Optimization.
  - EM simulator *HFSS*
  - Matching network optimizer – *Optenni Lab*
  - VNA/ZVA
  - Anechoic chamber
  - Satimo Starlab
- **Antenna Front End design** *(06/2018 – 08/2018)*: RF board with Tx/Rx/Calibration functions working at $3.3GHz - 3.8GHz$. The constrain is the width of the board must be small to be installed back-to-back with the antenna, whose size is comparable to half wavelength (40mm). The design was fabricated using 4 layers stack-up PCB and used for a project demonstration.
  - EM simulator *HFSS*
  - PCB design *KiCAD*
  - VNA/ZVA
  - Anechoic chamber
- **Student Intern** *(03/2017 – 07/2017)*: Design of reconfigurable antenna for LoRa system at both European $868MHz$ and American $916MHz$. The works include polarization, pattern (using switches) and frequency (using Digital Tunable Capacitor) reconfigurability. Most designs are IFA type to obtain compact form factor and good impedance matching.
  - EM simulator *HFSS*
  - PCB design *KiCAD*
  - Microcontroller programming *Keil C*
  - VNA/ZVA
  - Satimo Starlab

COURSES

- ESoA: ***Antenna systems for 5G communication*** by Chalmers University of Technology
- ESoA : ***Antennas and Rectennas for IoT Applications*** by Université Côte d'Azur

PUBLICATIONS

- ***"Experimental Evaluation of User's Finger Effects on a 5G Terminal Antenna Array at 26 GHz***," Antenna and Wireless Propagation Letter [link]
- ***"PSO-based Combined Antenna and Matching Network Optimization for Mobile Terminals,"*** 13th European Conference on Antenna and Propagation [link]
- ***"Dual-Matching for Single Resonance Miniaturized Antenna for IoT applications,"*** 2018 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting [link]

ACHIEVEMENTS

- *Second prize* for the ***Student antenna design competition*** in 21ièmes Journées Nationales Micro-ondes Cean 2019.
- *First Prize* of ***Smart Water Innovation Contest*** (2016), held by Embassy of Sweden in Ha Noi and the Vietnam's Ministry of Natural Resource and Environment, invited to *World Water Week 2016* in Stockholm