

NAJATH AKRAM, PH.D.

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SUMMARY

Wireless systems engineer with six years taking LTE and 5G NR O-RAN radio units from architecture to commercial release. Works the seams between hardware, firmware, verification, and partner-facing teams: roadmap alignment with 3GPP and O-RAN standards, interop debugging against OEM test stacks, and internal tools adopted by lab teams. Ships AI products end to end outside work, from a multi-tenant SaaS in production to an AI tax engine with per-user cost governance, and co-runs a photography business serving clients worldwide. Ph.D. with nine IEEE publications.

CORE SKILLS

Product and Systems: RRU architecture definition, 3GPP / O-RAN roadmap alignment, requirements and trade studies (massive MIMO, functional splits), verification strategy, release sign-off

Wireless Depth: 5G NR / LTE PHY, O-RAN fronthaul, DFE / CFR / PRACH, EVM / ACLR / PIM analysis, multiband TDD / FDD radios

Interop and Delivery: OEM lab interop (Ericsson, VIAVI test stacks), field debug and root cause, cross-vendor O-RAN captures, internal tool delivery

AI and Software: Anthropic Claude API and Agent SDK, multi-agent pipelines, cost governance, full-stack delivery (TypeScript, Python, MATLAB)

EXPERIENCE

AIRSPAN NETWORKS

Houston, Texas

Signal Processing Engineer

2025-Present

- Lead system and verification modeling for the multiband LTE / 5G NR O-RAN RRU line, owning the golden models used for firmware sign-off across commercial releases.
- Direct Baseband Interface Unit modeling and feature bring-up for commercial releases, aligning hardware, software, and systems teams on 3GPP and O-RAN compliance.
- Ran 29 production debug engagements over 18 months, including interop against Ericsson and VIAVI test stacks, turning lab and field captures into root causes that unblocked releases.
- Shipped two standalone analysis tools for lab teams (an O-RAN fronthaul power analyzer verified to 0.000 dB against an independent oracle, and an uplink waveform and PRACH analyzer), then led an AI-agent rebuild that cut analysis time from roughly 45 seconds to 3 seconds per capture.
- Built the uplink research line for shared-cell DAS: a bit-accurate MRC combining model, a from-scratch NR demodulator driven by decoded fronthaul captures, and Monte-Carlo trade studies of seven combining schemes with power-control tuning for UE battery life.
- Introduced AI-assisted engineering workflows (agent-maintained code maps and spec-driven plan, implement, and review pipelines) now covering the team's most complex models.
- Contributed system modeling and an AI-driven literature and gap analysis (106 verified citations across O-RAN WG4 and 3GPP specifications) to Airspan 6G research directions.

JABIL INC.

Warren, New Jersey | Houston, Texas

Principal Design Engineer (Wireless Systems)

2023-2024

Lead Design Engineer (Wireless Systems)

2021-2023

Senior FPGA Engineer (Wireless Systems)

2020-2021

- Led cross-functional software and firmware teams delivering LTE and 5G NR O-RAN RRUs for OEM customers; defined NR implementation requirements and wrote the architecture and implementation guidance the digital design team executed.
- Contributed to strategic decisions on massive MIMO implementation and O-RAN functional splits, weighing implementation complexity against resource allocation and project timelines.
- Delivered CFR cancellation-pulse analysis for a major OpenRAN program partner (2022).
- Performed filter design, CFR simulation, and end-to-end system modeling for single, dual, and tri-band radios through commercial release; promoted twice in four years.

FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

Graduate Research Assistant

2018-2020

- Developed digital and mixed-domain hardware-reduction algorithms for massive MIMO receivers, the basis of nine IEEE publications and a dissertation on reduced-ADC array architectures.

- Implemented a digital beamforming array receiver with 800 MHz per channel at 28 GHz on Xilinx RFSoc platforms (ZCU111, ZCU1275, ZCU1285), cutting ADC count by 75% with a frequency-multiplexed approach, and demonstrated a further 50% ADC reduction for 2D phased arrays with over-the-air validation.

MATHWORKS
Engineering Intern

Natick, Massachusetts
2019

- Won two awards in the fall 2019 intern hackathon; enhanced HDL Verifier and developed Ethernet PHY-interface IP designs across Artix, Kintex, and Virtex FPGAs.

THE UNIVERSITY OF AKRON
Graduate Research Assistant

Akron, Ohio
2016-2018

- Conducted DARPA, NSF, and AFRL-funded research on multidimensional RF systems: approximate-DFT beamforming cores and multidimensional Delta-Sigma ADC architectures for phased-array receivers.

INDEPENDENT PRODUCTS AND BUSINESS

- TaxLense: designed and built an AI-first tax engine end to end; multi-agent classification with IRC citations, evidence-tiered claims, an append-only audit ledger, and per-call cost tracking (Anthropic API, Next.js, PostgreSQL).
- RouteFlow: multi-tenant delivery SaaS in production (web, mobile, API) with 13 feature modules, live order tracking, invoicing, and CI/CD; designed the tenancy, pricing, and deployment model.
- Salient: clinical-case simulator for medical exam preparation with AI patient role-play, Stripe billing, and per-user cost budgets.
- Pixel Parchment: co-owner of a Houston wedding photography studio serving clients worldwide; built AGOS, a policy-gated agent framework for its revenue operations on the Claude Agent SDK.

EDUCATION

FLORIDA INTERNATIONAL UNIVERSITY
Ph.D., Electrical and Computer Engineering, 2020

Miami, Florida

UNIVERSITY OF RUHUNA
B.S. (Hons.), Electrical and Information Engineering, 2016

Galle, Sri Lanka

NATIONAL INSTITUTE OF BUSINESS MANAGEMENT
A.S., Business Management, 2015

Galle, Sri Lanka

SELECTED PUBLICATIONS

- Frequency-Multiplexed Array Digitization for MIMO Receivers: 4-Antennas/ADC at 28 GHz on Xilinx ZCU-1285 RF SoC, IEEE Access, vol. 9, 2021.
- Spacetime Frequency-Multiplexed Digital-RF Array Receivers with Reduced ADC Count, IEEE Transactions on Circuits and Systems II: Express Briefs, vol. 68, 2021.
- Fast Radix-32 Approximate DFTs for 1024-Beam Digital RF Beamforming, IEEE Access, vol. 8, 2020.

Nine publications and an AFRL technical report in total; full list at najathakram.info.

AFFILIATIONS

IEEE, Member since 2013 | Tau Beta Pi Engineering Honor Society, 2019 to present