# Yahia Zakaria Mohamed Ibrahim

EECS department

## Personal Data


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## Research Interests

mm-waves, RF transceivers, Phased-Arrays, PAs, Radar Systems, Biomedical Imaging, PLLs, CDRs, IoT, Power Management, Photonics ADCs

## Education

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| Aug 2021-Present | **PhD: EECS department, University of California at Berkeley**<br>Second year Graduate Student Researcher.<br>**Major**: Integrated Circuits (Prof. Ali Niknejad's group)<br>**Curriculum Emphasis:** Linear Integrated Circuits (EE 240A) - Digital Integrated Circuits (EECS 251A) - Advanced Analog Integrated Circuits (EE 240B) - Integrated Circuits for Communications (EE 242A)<br>**GPA:** 3.947 |
| SEP 2017-May 2021 | **MSc: Cairo University, Egypt**<br>Department of Electronics and Electrical Communications<br>**Thesis:** Design of mm-wave phase invariant Variable Gain Amplifier and low phase noise Voltage Controlled Oscillator for 5G transceivers:<br>**GPA: 3.9/4.0** |
| 2012-2017 | **BSc, Distiction with Highest Honors, Cairo University, Egypt**<br>Department of Electronics and Electrical Communications<br>**Cumulative rate**: **91.99% (top 2% of my class)**<br>**Final year Rank**: **$2^{nd}$/260**<br>**Graduation Project:** "A Fully Integrated 28 GHz 4-Channel Phased Array 5G Transceiver in 65-nm CMOS Technology " |

## Patents

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| 2020 | Yahia Z. M. Ibrahim, Mohamed Ahmed Youssef Abdalla "Variable gain amplifiers with cross-couple switching arrangements" (granted U.S. patent) |

## Publications

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| 2022 | Yahia Z. M. Ibrahim, Mohamed A. Y. Abdalla, Ahmed N. Mohieldin "A 197 FoMT VCO with 34% Tuning Range for 5G Applications in 45nm SOI Technology" **IEEE RWW 2022** |
| 2019 | H. A. Ameen, K. Abdelmonem, M. A. Elgamal, M. A. Mousa, O. Hamada, Y. Zakaria, M. A. Abdalla "A 28 GHz four-channel phased-array transceiver in 65-nm CMOS technology for 5G applications," in **International Journal of Electronics and Communications (AEU) , Jan 2019** |

2017 — H. A. Ameen, K. Abdelmonem, M. A. Elgamal, M. A. Mousa, O. Hamada, Y. Zakaria, M. A. Abdalla "A 28 GHz four-channel phased-array transceiver in 65-nm CMOS technology for 5G applications," in **IEEE International Conference of Microelectronics (ICM), Dec 2017**

## Research Experience

**Current** — **Graduate Student Researcher at Berkeley Wireless Research Center**
High frequency mm-wave integrated circuits.

2019-2021 — **Research Assistant at EECE department at Cairo University**
Design, implementation, fabrication and measurement of:

- Wideband phase invariant high linearity VGA covering all 5G main bands on 45nm SOI technology
- Low phase noise VCO with wide tuning range for 5G applications
- A low power novel square wave VCO for high speed digital applications on 45nm SOI technology

## Professional Experience

SEP 17 - May 21 — RFIC Design Engineer at **ANALOG DEVICES** Egypt:
**Main Contributions:**

- Design and implementation of challenging RF/mm-wave circuits: RF Variable Gain Amplifiers - Digital step attenuators - Low Noise Amplifiers - RF Switches - Couplers - RF and IF amplifiers - Square/Envelope detectors - Phase shifters
- **Top** level chip verification and system simulations
- **Part** of team developed 5G Beamformer Products: **ADMV4928** - **ADMV4828** - **ADMV4728**
- **Participation** in five tapeouts for 5G beamformers and UDCs
- **Training** undergraduates, participating in **Analog Devices** training program, on RF concepts and design of RF main circuits

Sep 16 - June 17 — **Graduation Project:**
*A Fully Integrated 28 GHz 4-Channel Phased Array 5G Transceiver in 65-nm CMOS Technology*
**Role in Project:**

- Design of 24-30 GHz 20dB range Variable gain amplifier with low phase and gain errors
- System Integration for the transmitter and receiver building blocks and top level simulations

June 16 - Aug 16 — **RFIC Intern at Analog devices Egypt:**

- System design for RF transceivers chains
- Circuit design for RF blocks (**LNAs-PAs-phase shifters-mixers**)

June 14 - July 14 — **Intern at IBM Egypt** :

- Installation and configuration of IBM servers at different sites

## Conference Presentations

Dec 2017 — Presentation at the International Conference of Microelectronics titled "A 28 GHz Phased-Array 5G Transceiver in 65-nm CMOS Technology"

## Teaching Experience

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| Sep 17 - May 21 | **Teaching Assistant at Electronics and Electrical Communications department, Cairo University, Egypt**<br>**Teaching** 250 student the following courses:<br>• **Fall 2020** : **ELC201A** Electronics course covering:<br>Single stage Amplifiers - Frequency response - Noise analysis - Oscillators - Feedback amplifiers<br>• **Spring 2020** : **ELC306B** Digital Communications covering:<br>Random Process - Matched filter - ISI - Digital Modulation<br>• **Fall 2019** : **ELC306A** Communications course covering :<br>Fourier transform - Pulse modulation - Analog modulation - Superheterodyne receivers<br>• **Fall 2017** : **ELCN201** Electronics course covering:<br>Single stage Amplifiers - Frequency response - Digital Circuits<br>**Supervision** on laboratory experiments |

## Awards and Competitions

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| 2021-2022 | **Excellence award at EECS department at University of California at Berkeley** |
| 2021-2022 | **Gateway fellowship award at Berekely International House** |
| Sep 2017-May 2021 | **Full tuition graduate Teaching Assistantship** at Electronics and Electrical Communications department, Cairo University, Egypt |
| July 2018 | **First place** in **International Microelectronics Olympiads Qualifiers** ($1^{st}$/talented IC competitors from all Egyptian universities) |
| 2012 - 2017 | **Undergraduate Excellence Award** from Cairo university, Egypt |
| 2012 | **Excellence Medal** from the ministry of Education |

## EXTRACURRICULAR ACTIVITIES

- Attending the International Microelectronics Olympiads final stage in Armenia
- Volunteer work in charitable organization “Resala“ to conduct water to poor people who suffer from lack of fresh water

## Test Scores

- **TOEFL: 103/120** (Reading: 28, Listening: 25, Speaking: 23, Writing: 27)

## Technical Skills

- RF and mm-Wave circuit design
- Analog circuit design
- Very strong knowledge in:
  - Cadence and ADS
  - EM solvers: EMX, Sonnet and CST
  - Matlab and simulink
  - Modelsim, Quartus and C++
- Digital and VLSI design
- C/C++ Programming

## Soft Skills

- Presentation Skills
- Leadership and teamwork
- Communication Skills
- Proficiency of technical writing
- **Languages: Arabic** (Native) **English** (Fluent) **French** (Beginner)