

## Hesham Ahmed Amin Beshary

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### CONTACT INFORMATION

335 Ohlone Ave, Albany,  
CA, 94706

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### RESEARCH INTERESTS

mm-Wave, Phased-Arrays, Beamformers, Radar Systems, Transceivers, PAs, Power Management, IoT, ADCs, CDRs and Software Engineering

### EDUCATION

(2020–PRESENT)

**PhD: University of California at Berkeley**  
**Department of Electrical Engineering and Computer Science**  
**Major:** Integrated Circuits  
**Research area:** Squint-free sub-THz massive MIMO phased arrays  
**Advisor:** Prof. Ali M. Niknejad  
**GPA: 4.0/4.0**

(2017–2020)

**MSc: Cairo University, Cairo, Egypt**  
**Department of Electronics and Electrical Communications**  
**Thesis:** Phase Shifters and Power Splitters Design and Implementation Techniques for mm-Wave Beamforming Applications.  
**GPA: 4.0/4.0**

(2012–2017)

**BSc, Distinction with Honor: Cairo University, Cairo, Egypt**  
**Department of Electronics and Electrical Communications**  
**Rank: 1<sup>st</sup>/240**  
**Cumulative rate: 96.04% with equivalent GPA: 4.0/4.0**  
**Graduation project:** Design and implementation of a fully integrated 28 GHz 4-channel phased-array transceiver for 5G applications in 65-nm CMOS technology, sponsored by **Analog Devices Inc**, Egypt.

### PATENTS

(2019)

M. Abd-elsalam, Hesham Beshary, M. A. Abdalla, "Polyphase filter (PPF) including RC-LR sections." US Patent Number 11,101,782 B1

### PUBLICATIONS

(2022)

Ethan Chou, Nima Baniasadi, Hesham Beshary, Meng Wei, Emily Naviasky, Lorenzo Iotti, Ali Niknejad, "A Low-Power and Energy-Efficient D-Band CMOS Four-Channel Receiver with Integrated LO Generation for Digital Beamforming Arrays," ESSCIRC 2022- IEEE 48th European Solid State Circuits Conference (ESSCIRC), 2022

(2022)

Meng Wei, Nima Baniasad, Ethan Chou, Hesham Beshary, Sashank Krishnamurthy, Elad Alon, Ali Niknejad, "A D-Band Packaged CMOS Integrated Transmitter for MU-MIMO Applications," ASSCC 2022 (Accepted)

- (2020) H. Beshary et al., "A Compact Low-Loss On-chip N-Way Wilkinson Power Divider for mm-Wave 5G Applications," 2020 IEEE 63rd International Midwest Symposium on Circuits and Systems (MWSCAS), Springfield, MA, USA, 2020
- (2019) H. A. Ameen et al., "A 28 GHz four-channel phased-array transceiver in 65-nm CMOS technology for 5G applications," *AEU - International Journal of Electronics and Communications* 98 (2019)
- (2017) H. A. Ameen et al., "A 28 GHz Four-Channel Phased-Array transceiver in 65-nm CMOS technology for 5G applications," in *2017 29th International Conference on Microelectronics (ICM) (IEEE-ICM2017)*, Crowne Plaza Hotel, Beirut, Lebanon, Dec. 2017.

#### WORK EXPERIENCE

- (AUG 2020–PRESENT) **Graduate Student Researcher at Berkeley Wireless Research Center (BWRC).** Focusing on the design of mm-wave and sub-THz circuits and systems.
- (SEP 2017–AUG 2020) **RF Design Engineer at Analog Devices, Egypt.** Design and implementation of variety of RF/mm-wave circuits for 5G beamformers and 5G UDCs including:
- |                |                 |
|----------------|-----------------|
| Phase shifters | RF switches     |
| Wilkinsons     | Power detectors |
| Mixers         | Amplifiers      |
- and involved in testing and many tapeouts, including the following products:
- |          |          |
|----------|----------|
| ADMV4728 | ADMV4828 |
| ADMV4928 | ADMV1139 |
- (SEP 2017–AUG 2020) **Teaching/Research Assistant at Department of Electronics and Electrical Communications, Cairo University.**
- Supervising many undergraduate workshops.
- Teaching in tutorials the following courses:
- ❑ ELC201A (Electronics): [Fall 2019]  
Frequency response - Feedback amplifiers - Oscillators - Noise analysis
  - ❑ ELC206 (Signal Analysis): [Spring 2019]/[Spring 2018]  
CT and DT signals and systems - Fourier series - Fourier transform - Z-transform - Sampling
  - ❑ ELC401A (Electronics): [Fall 2018]  
PLLs - Op-amps design and stability - Memory design and interface. [Fall 2018]
  - ❑ ELC307A (Systems): [Fall 2018]  
System representation - Transfer function - Block diagram - Impulse response - Routh-Hurwitz stability - State space representation - Observability - Controllability.
  - ❑ ELCN201 (Electronics): [Fall 2017]  
Single stage amplifiers - Frequency response - Current mirrors.
- (SEP 2016–AUG 2017) **Graduation project work.** System-level design for a beamformer operating at 28 GHz in 65-nm CMOS technology and determining the sub-blocks' specifications, designing of an active phase-shifter and handling the system-level integration and simulations. The circuit layout is extracted by EM simulation (Sonnet).

- (JULY 2016–SEP 2016) **Internship at Fritz Huettinger Chair of Microelectronics, IMTEK, University of Freiburg, Germany.** Design and implementation of standard cells for logic gates, flip-flops and subthreshold circuits at ultra-low voltage supply for IoT applications and Verilog-A programming.
- (JULY 2015–SEP 2015) **Full-time job at Security Meter, Egypt.** UHCI and EHCI USB drivers development for OS and hobby-kernels.
- (FEB 2015–MAY 2015) **Educational teamwork project.** Design and implementation of pipelined microprocessor using VHDL.
- (AUG 2014–MAR 2015) **Internship at Inmobily, Egypt.** Open source, Intel baremetal programming and OS development.

TECHNICAL SKILLS	RF and mm-wave circuits design Digital design and VLSI design C/C++ programming Very good knowledge of: <ul style="list-style-type: none"> <li>❑ Cadence tools and ADS</li> <li>❑ EM solvers such as EMX, Sonnet, Momentum, EMPro and HFSS</li> <li>❑ MATLAB, Simulink</li> <li>❑ Modelsim</li> </ul>	Analog design Microwave design L <sup>A</sup> T <sub>E</sub> X
SOFT SKILLS	Design sense and abstractive thinking Work-life balance Communication skills	Leadership Resilience
LANGUAGES	<b>Arabic</b> , Native. <b>English</b> , Proficient. <b>German</b> , Beginner.	
HOBBIES	Reading, self-studying and keeping track of modern technologies.	
REFERENCES	<p>Prof. <b>Ali Niknejad</b>            Electrical Engineering and Computer Sciences, UC Berkeley (PhD Advisor)  <b>Email:</b> niknejad@berkeley.edu</p> <p>Dr. <b>Ahmed Ibrahim Khalil</b>, <i>Ph.D.</i>, North Carolina State University            ADI Fellow and General Manager at Analog Devices Egypt  <b>Email:</b> ahmed.khalil@analog.com</p> <p>Prof. <b>Ahmed N. Mohiaddin</b>, <i>Ph.D.</i>, University of Texas A&amp;M            Department of Electronics and Electrical Communications Engineering, Cairo University, Egypt. (MS supervisor)  <b>Email:</b> anader@eng1.cu.edu.eg</p> <p>Prof. <b>Mohamed A. Y. Abdalla</b>, <i>Ph.D.</i>, University of Toronto            Department of Electronics and Electrical Communications Engineering, Cairo University, Egypt. (MS supervisor)  <b>Email:</b> youssef@ieee.org</p>	