

# Hossein Najafiaghdam

## CV/Resume

490 SwarmLab, Cory Hall  
University of California at Berkeley  
Berkeley, CA 94720  
☎ <+1-(510)-816-4455>  
✉ <hossein\_najafi@berkeley.edu>

### Education

- Sept 2016 - Present **Ph.D. student in Electrical Engineering and Computer Science, University of California Berkeley, EECS Department**  
**Degree completed:** Master of Science - Dec 2018  
**Expected graduation date:** Sept 2021  
**Current GPA: 3.98/4.0**
- Sept 2011 - Feb 2016 **B.Sc. in Electrical Engineering, Sharif University of Technology, Tehran, Iran.**  
**Total Cumulative GPA: 18.07/20**

### Experience

- 2016 - Present **Graduate Student Researcher at Swarm Lab, University of California Berkeley.**  
Design of an ultra-thin optics-free intraoperative tissue imager for microscopic residual cancer detection using time-gated CMOS array imaging.  
**Advisors:** Ali Niknejad/Mekhail Anwar
- June 2020 - Aug 2020 **Summer Intern in High Speed Converter (HSC) Group at Apple Inc.**  
Successfully created and implemented a on-chip DAC calibration scheme with minimal digital and analog overhead, **and** established design guidelines for non-ideality mitigation (Flicker noise, Decimation Filters, CDS, Chopping, etc) for the next generation of high accuracy Sigma-Delta ADCs.
- May 2019 - Aug 2019 **Summer Intern in Silicon Engineering Group (SEG) at Apple Inc.**  
Implementing machine-learning-based techniques to speed up post-fabrication verification of high speed datalinks in serial communication protocols.
- Feb 2015 - Feb 2016 **Undergraduate Research Assistant at Integrated Circuits Design Lab (ICDL), Sharif University of Technology, Tehran, Iran.**  
Focusing on developing a novel inductorless phase noise enhancement technique using complex poles manipulation in ring oscillators.  
**Advisor:** Mehrdad Sharif Bakhtiar.

### Publications and Conferences

- Theranostics **"A 25 micron-thin microscope for imaging upconverting nanoparticles with NIR-I and NIR-II illumination"**, Hossein Najafiaghdam, Efthymios Papageorgiou, Nicole A. Torquato, Bining Tian, Bruce E. Cohen, Mekhail Anwar, *Theranostics* 9 (26), 8239-8252, 2019.

- Nature Communications** "Low Irradiance Multiphoton Imaging With Alloyed Lanthanide Nanocrystals", B. Tian, A. Fernandez-Bravo, H. Najafiaghdam, N. A. Torquato, M.V.P. Altoe, A. Teitelboim, C. A. Tajon, Y. Tian, N.J. Borys, E.S. Barnard, M. Anwar, E.M. Chan, P.J. Schuck and B.E. Cohen, *Nature Communications*, 2018.
- WMIC 2018** "An Optics-Free Ultra-Thin Time-Resolved Intraoperative Imaging Platform for Deep Infrared Imaging of Alloyed Upconverting Nanoparticles", Hossein Najafiaghdam, Efthymios P. Papageorgiou, Nicole A. Torquato, Cheryl A. Tajon, Hui Zhang, Catherin Park, Bruce Cohen, Mekhail Anwar, *WMIC 2018*, Sept 2018.
- EMBC 2018** "A Molecular Imaging "Skin": A Time-Resolving Intraoperative Imager for Microscopic Residual Cancer Detection Using Enhanced Upconverting Nanoparticles", Hossein Najafiaghdam, Efthymios P. Papageorgiou, Nicole A. Torquato, Cheryl A. Tajon, Hui Zhang, Catherine Park, Bernhard Boser, Bruce E. Cohen, Mekhail Anwar, *EMBC 2018*, July 2018.

## Fields of Interest

- System Design
- Machine Learning and Algorithms In System Design
- Mixed-Mode Circuit Design

## Honors and Awards

- 2015 Received the "Distinguished B.Sc. Project" award of 2015 at the Electrical Engineering Department, *Sharif University of Technology, Tehran, Iran*
- 2011 Ranked 12<sup>th</sup> in Iran's University Entrance Exam, among 350,000 contestants

## Non-course Projects

- Summer 2015 **Implementation of an Ultra Low Power Heart Rate Monitoring Hand-held Device Prototype Using BLE (Bluetooth 4G).**
- 2014 - 2015 **Design and implementation of an arbitrary waveform generator for cognitive radio applications.**  
(Nominated and won the award for "Distinguished B.Sc. Project" in 2015)
- Fall 2013 **Design and implementation of an interactive GUI in MATLAB/SIMULINK to design, optimize and simulate system-level Delta-Sigma ADCs with user-defined specs, both continuous and discrete time.**

## Attended Workshops

- Spring 2015 **RF Receivers and Synthesizers Design**  
Attended the workshop held at *Sharif University of Technology*, as part of the 23<sup>rd</sup> Iranian Conference on Electrical Engineering (ICEE) by Prof. Behzad Razavi from *UCLA, USA*.
- Spring 2015 **N-path Filters and Translational Circuits**  
Attended the workshop held at *Sharif University of Technology*, by Prof. Behzad Razavi from *UCLA, USA*.

- Winter 2014 **mm-THz Wave Circuits**  
 Attended the workshop held at *Sharif University of Technology* by Prof. Ehsan Afshari from *Cornell University, USA*.
- Winter 2014 **Miniaturized Passive Radios for Wireless Tagging and IoT Applications**  
 Attended the workshop held at *Sharif University of Technology* by Prof. Amin Arbabian from *Stanford University, USA*.
- Summer 2014 **Digitally Assisted Analog Circuits**  
 Attended the workshop held at *Sharif University of Technology* by Prof. Gielen from *KU Leuven, Belgium*.

## Selected Courses Grades

### • Graduate Courses •

#### *University of California Berkeley*

- Introduction to Machine Learning A
- Intro to Digital Design and Integrated Circuits A
- Analog Integrated Circuits A+
- Advanced Digital Integrated Circuits A
- Advanced Analog Integrated Circuits A+
- Analysis and Design of VLSI (ADC Design) A+
- Advanced Topics in Bioelectronics A-

#### *Sharif University of Technology*

- Circuit Design and Layout LAB 18/20
- RF Integrated Circuits 17.7/20 (Ranked 3<sup>rd</sup>)
- CMOS Circuits Design 18.2/20 (Ranked 3<sup>rd</sup>)

### • Undergraduate Courses •

- Principles of Electronics (Electronics I) 19.2/20 (Ranked 2<sup>nd</sup>)
- Analog Electronics (Electronics II) 18.7/20 (Ranked 2<sup>nd</sup>)
- Communication Circuits 20/20 (Ranked 1<sup>st</sup>)
- Filter Synthesis and Design 19.5/20 (Ranked 1<sup>st</sup>)
- Pulse and Digital Circuits 18.8/20 (Ranked 3<sup>rd</sup>)

## Computer Skills

Cadence, ADS, MATLAB and Simulink, Lumerical, Hspice, Python, C++, Quartus, Altium Designer, Orcad Pspice, Code Vision AVR, Proteus, Microsoft Word/Excel/Powerpoint and L<sup>A</sup>T<sub>E</sub>X

## References

### **Moshiur Mekhail Anwar, M.D., Ph.D.**

Assistant Professor

Department of Radiation Oncology

UCSF Ron Conway Family Gateway

Medical Building

1825 4th Street, Room M2260

San Francisco, CA 94158

✉ mekhail.anwar@ucsf.edu

☎ (+1) (415) 514-2070

### **Ali Niknejad, Ph.D.**

Professor

EECS Department

University of California Berkeley

Room 511, Cory Hall

Berkeley, CA 94720

✉ niknejad@eecs.berkeley.edu

☎ (+1) (510) 642-0459