

# Stanford

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## Ahmed Sawaby

Ph.D. Student in Electrical Engineering, admitted Autumn 2017

### Bio

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#### BIO

Ahmed received his B.Sc. degree from Cairo University in 2014. He is currently perusing his Ph.D. degree (2017-2022) at Stanford University. His research interests include biomedical electronics, medical implant and sensing systems, power management systems, analog-mixed circuits, ultra-low-power systems, energy harvesting, ultra-low-power transceivers, and RF systems.

Ahmed worked as an RFIC design engineer at Silicon Vision, Synopsys Inc. (2015-2016), where he worked on a state of the art Bluetooth low-energy (BLE) IP module. He also joined the teaching staff at the Faculty of Engineering, Cairo University, in 2014-2015 as a part of the teaching teams for the ELC102 Electronics and Devices course and the ELC302 Active Circuits course along with mentoring and supervising senior students' lab projects. From 2016 to 2017, he joined the Arababian lab, Stanford University, as a visiting researcher where he worked with the implant team on designing wireless neural stimulation and pressure sensing systems. He also worked with Apple Inc. power management team in 2019 and 2020 on designing state-of-the-art power delivery systems.

#### HONORS AND AWARDS

- 2020 TbioCAS Best Paper Award, IEEE Transactions on Biomedical Circuits and Systems (TbioCAS) (2020)
- Best Poster Award, Stanford Bio-X Interdisciplinary Initiatives Seed Grant Program Symposium (2018)
- Outstanding Student Designer Award, Analog Devices (ADI) (2018)
- Named the Texas Instrument Fellow and awarded three years graduate fellowship, Texas Instrument and Stanford Graduate Fellowship (SGF) (2017)
- First place at nation-wide Electronics Olympiads Egyptian qualifiers results, International Electronics Olympiads Committee (2015)
- 2nd Place Nation-wide Graduation Project Contest Award in IC design track, IBTICAR (2014)
- Awarded the M.Sc. fellowship from Cairo University for outstanding achievements, Cairo University, Faculty of Engineering (2014)
- Outstanding Student Award Certificate, Schlumberger Middle East (2012)

#### PATENTS

- Ahmed Sawaby, Alberto Puggelli. "United States Patent US10958164B1 Transient control for switched-capacitor regulators", Apple Inc., Mar 23, 2021

#### LINKS

- Google Scholar: <https://scholar.google.com/citations?user=eAmAV2gAAAAJ&hl=en>

### Research & Scholarship

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#### PROJECTS

- Ultra-Low Power Wireless Ultrasound Imaging Systems at the Edge - Stanford University (2017 - 2022)

- A mm-sized wireless implantable device for electrical stimulation of peripheral nerves - Stanford University (2016 - 2017)
- A miniaturized single-transducer implantable pressure sensor with time-multiplexed ultrasonic data and power links - Stanford University (2015 - 2016)
- Bluetooth Low-Energy (BLE) 55nm IP - Silicon Vision (2015 - 2016)
- Transient control for switched-capacitor regulators - Apple Inc. (2019 - 2019)

## Teaching

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### COURSES

#### 2021-22

- Advanced Integrated Circuit Design: EE 214B (Win)

## Professional

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### WORK EXPERIENCE

- Analog IC design Engineer - Apple Inc (2019 - 2020)
- Visiting Researcher - Stanford University (2016 - 2017)
- RFIC Design Engineer - Silicon Vision (2015 - 2016)
- Electronics Research Assistant - Cairo University (2014 - 2016)
- Teaching Assistant Staff at the Faculty of Engineering - Cairo University (2014 - 2015)

## Publications

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### PUBLICATIONS

- **A mm-Sized Wireless Implantable Device for Electrical Stimulation of Peripheral Nerves** *IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS*  
Charthad, J., Chang, T., Liu, Z., Sawaby, A., Weber, M. J., Baker, S., Gore, F., Felt, S. A., Arbabian, A.  
2018; 12 (2): 257–70
- **A Miniaturized Single-Transducer Implantable Pressure Sensor With Time-Multiplexed Ultrasonic Data and Power Links**  
Weber, M. J., Yoshihara, Y., Sawaby, A., Charthad, J., Chang, T., Arbabian, A.  
IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC.2018: 1089–1101
- **A High-Precision 36 mm(3) Programmable Implantable Pressure Sensor with Fully Ultrasonic Power-up and Data Link**  
Weber, M. J., Yoshihara, Y., Sawaby, A., Charthad, J., Chang, T., Garland, R., Arbabian, A., IEEE  
IEEE.2017: C104–C105
- **Mixed-Mode Self-Calibrated Amplitude Control Scheme for MEMS Vibratory Gyroscopes**  
Sawaby, A., Ahmed, A. S., Abozeid, M. O., Ali, H., Aboudina, M. M., IEEE  
IEEE.2016