# ECSE Faculty Candidate Seminar

**11:30 AM to 12:30 PM**
**Tuesday, March 1, 2022**
**In-person: White 411 and Virtual**

**Zoom Webinar ID: 940 7438 8634**
**Passcode: 357363**

## Acousto-Bioelectronics

**Abstract:** Today, we are living in a blessed era of health care due to advanced technologies. Yet, there are many unknowns in our body. To answer the unknown, the next-generation implantable biomedical microdevices are proposed by many researchers. For this, energy transfer, size, and form factors are three critical design factors. Traditional powering methods such as batteries and inductive power transfer cannot satisfy conflicting requirements of deep penetration, omni-directionality, and the small size required for many emerging applications. One promising approach is the use of acoustic waves (or ultrasound). Acoustic waves in the body offer superior energy-conversion efficiency at millimeter-scale dimensions, deeper penetration depth, and omnidirectionality as compared to the traditional inductive powering method. This makes ultrasound an attractive candidate for powering deep-seated implantable medical devices. In this talk, I will focus on 'Acousto-Bioelectronics,' a branch of electrical engineering that studies the use of acoustic waves in the biomedical microelectromechanical system (BioMEMS) and nanotechnology. In particular, I will elaborate on some of our recent works towards developing a*n implantable Acousto-Bioelectronics for translational cancer therapy*.

**Albert Kim**
**Temple University**

**Bio:** : Albert Kim received a Ph.D. degree in Electrical and Computer Engineering from Purdue University, West Lafayette, IN, the USA, in 2015. From 2015 to 2017, he was an R&D engineer at Intel Corp. Since July 2017, he has been with the Department of Electrical and Computer Engineering at Temple University, Philadelphia, USA, where he is currently an Assistant Professor. His research interests include clinical applications of microsystems, mobile health, and biomimetic sensors and actuators. He collaborates closely with physicians and biologists in order to transfer the technology to the clinic. He has been contributing over 50 publications in prestigious journals, international conferences, and patents. His research has been funded by the National Science Foundation. Furthermore, he founded startup companies based on his research projects.

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This is to certify that _____attended this seminar. Certified by _____.
Certificates of attendance and other evidence of CPD activity should be retained by the attendee for auditing purposes.

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