Omar B. Osman

Ph. D. Candidate

Stony Brook, NY
osmanob@gmail.com
(909) 953-9734
linkedin.com/in/osmanob/
omarosman.com

Education

2021 Ph. D. Biomedical Engineering
State University of New York, Stony Brook

2019 M.S. Biomedical Engineering
State University of New York, Stony Brook

2015 B.S. Bioengineering
University of California, Riverside

Skills

MATLAB - *Proficient*
Discrete-time signal analysis, mathematical modeling, hyperspectral image processing, optimization algorithms, material parameter characterization.

Solidworks/Fusion360 - *Proficient*
Designed and 3D printed sample mounts, optical components, and microfluidic devices.

Adruino/Microcontrollers
Automated motor control using biosignal feedback mechanism.

COMSOL Multiphysics
Modeled airflow in a tracheobronchial tree and microfluidic devices.

Programs

Fundamentals of the Bioscience Industry
Stony Brook, NY
An interactive program that covered intellectual property, regulatory, financing, and corporate culture as they relate to the biosciences industry.

Siegman International School on Lasers
Rochester, NY
A topical conference with workshops tailored for graduate students who work with laser development and applications.

Summary

Ph. D. Candidate with a focus on applications of terahertz spectroscopy and experiences in academia and industry. I have broad scientific interests and a passion for presenting science to technical and non-technical audiences.

Experience

2016 – Present **Research Assistant** **THz Biophotonics Lab | Stony Brook, NY**
Experimentally and theoretically developed methods for THz spectroscopy in biomedical applications.

2016 **Research Assistant** **SynED Lab | Stony Brook, NY**
Used synthetic gene circuits in yeast to study dose dependent and non-genetic heterogeneity during a laboratory rotation.

2016 **Research Engineer** **Wainamics Inc | Fremont, CA**
Designed and tested point-of-care microfluidic diagnostic platforms as a product development consultancy for clients at large corporations, government and startups.

2013-2015 **Undergrad Researcher** **Aqueous bioprocess Lab | Riverside, CA**
Conducted experiments and analysis for pretrement of cellulosic biomass to enhance fermentation for ethanol and fuel precursors.

Projects

2018-2021 ***In-vivo* THz imaging of burns injuries** **Stony Brook, NY**
With a small team, we completed the first series of *in vivo* porcine burn studies using THz imaging for quantitative burn diagnostics.

2017-2019 **THz spectroscopy of corneal phantoms** **Stony Brook, NY**
Built the groundwork for the team that currently studies THz spectral imaging in ophthalmology by modeling the electromagnetic and diffusion dynamics in a corneal phantom.

2017-2018 **Signal processing for chemical detection** **Stony Brook, NY**
Developed, alone and in collaboration, signal processing algorithms for detection of spectral features from illicit chemicals that are obscured by electromagnetic scattering.

2018 **Commercialization plan for novel PET tracer** **Stony Brook, NY**
As a part of the FOBIP program, I led a small team to create a commercialization plan to bring a novel PET radiotracer research to market and pitch the plan to a group of local investors.

2014 **Senior Design Project** **Riverside, CA**
Designed a prototype and created a commercialization plan for an EMG controlled and actuator driven knee brace.

Awards

Sep 2019 **Outstanding Student Poster and Presentation Award**
Carnegie Mellon Forum on Biomedical Engineering | Pittsburgh, PA

Mar 2019 **Outstanding Student Poster and Presentation Award**
Optical THz Science and Technology Conference | Santa Fe, NM

Select Publications

* denotes equal contribution
Full publication list available on Google Scholar

2020 OB Osman *et al.* THz time-domain imaging for burn characterization in an acute *in vivo* porcine scald model. *in prep*

2019 *A Chen, *OB Osman *et al.* Investigation of water diffusion dynamics in corneal phantoms using terahertz time-domain spectroscopy. *Biomed. Opt. Express. 11(3)*

2019 OB Osman and M.H. Arbab. Mitigating the effects of granular scatteirng using cepstrum analysis in terahertz tim-domain spectral imaging. PLoS ONE. 14(5).

2016 TY Nguyen, CM Cai, OB Osman, *et al.* . CELF pretreatment of corn stover boosts ethanol titers and yields from high solids SSF with low enzyme loadings. *Green Chemistry*. 18(6).