ARIEL V. SLEPYAN

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EDUCATION

JOHNS HOPKINS UNIVERSITY, 2020
B.S. IN BIOMEDICAL ENGINEERING

Bloomberg Scholarship Recipient

Concentration: Instrumentation, Medical Devices, and Micro/Nano Technology

Minor: Mathematics

TECHNICAL SKILLS

- **MICROFABRICATION SKILLS**

Photolithography, soft lithography, PDMS molding, thin film deposition, dry/wet etching, bonding, mask design

- **PROGRAMMING SKILLS**

Proficient in Python, Java, C, and MATLAB. Experienced with data science/machine learning in Python. Proficient with Arduino.

- **COMPUTER AIDED DESIGN**

Proficient in AutoCAD/Autodesk Inventor. Experienced with Solidworks. Computer simulation experience in COMSOL. Experienced in 3D Printing.

- **WET LAB SKILLS**

Agarose gel electrophoresis, DNA/RNA isolation, restriction enzyme digestion, polymerase chain reaction (PCR), RT-PCR, ELISA, bioinformatics programs (BLAST, ClustalW, Phylogenetic Analysis, ImageJ)

AWARDS

- Finalist for FastForward Summer Award ($10,000) to support point-of-care diagnostics venture (2019)
- Winner of Johns Hopkins Spark Grant to continue work on point-of-care diagnostics venture (2018)
- 2nd place overall winner at MedHacks 2017 and Winner of Wolfram & Contrary Capital Prize (2017)
- 2nd Place in Microbiology at Intel ISEF 2016 (Intel International Science and Engineering Fair)
- Intel ISEF Finalist 2015, 2016 (Intel International Science and Engineering Fair)
- 1st Place in Engineering (2016) and Materials Science (2015) at the New York State Science and Engineering Fair

BIO

A creative biomedical engineer experienced in microfabrication, microfluidics, robotics, wireless sensing, neuromorphic design, and python programming.

RESEARCH EXPERIENCE

SINAPSE Institute (Singapore Institute for Neurotechnology) **(Summer 2019)**

Researcher at the SINAPSE Institute at the National University of Singapore (NUS)

- Designed and built a biomimetic soft robotic finger for dexterous manipulation
- Developed a control system for delicate grasping of objects using two soft robotic fingers
- Designed and built a novel tactile sensor that is wireless, passive, neuromorphic, and scalable from RFID technology

IMEC (Interuniversity Microelectronics Center) **(Summer 2018)**

Visiting Research Scholar in Life Science Technology department at IMEC

- Built a microfluidic droplet sorting platform in a silicon microchip
- Redesigned photomask to improve chip performance and eliminate clogging
- Generated computer simulations of microfluidic droplet sorting in COMSOL

Johns Hopkins University – Nitish Thakor Lab **(2019 – present)**

Undergraduate Researcher in the Neuroengineering & Biomedical Instrumentation Lab

- Developing a novel tactile sensor that is wireless, passive, neuromorphic, and scalable from NFC technology

Johns Hopkins University – Jeff Wang Lab **(2017 – 2019)**

Undergraduate Researcher in the BioMEMS & Single Molecule Dynamics Lab

- Designed and built a droplet based microfluidic platform for measuring enzyme kinetics
- Designed and built a droplet based microfluidic platform for vacuum based loading
- Implemented MATLAB based system to control microfluidic valves during experimentation

LEADERSHIP AND TEACHING EXPERIENCE

Team leader of student venture PPOC4.me **(2017 – present)**

- Venture focuses on developing accessible paper based microfluidic diagnostic devices
- Presented at invitational Baltimore Innovation Week Science Conference 2017
- Member of TCO Lab's Hatchery Incubation Program (2017 - 2018)

Teaching Assistant for Biomedical Data Science Lab (EN.580.477) **(Fall 2019)**

- Conducted weekly lab sessions with ~40 students, held weekly office hours, graded assignments/provided feedback
- Topics covered: biomedical data processing (convolution, denoising, filtering, edge detection, template matching), biomedical data reduction (feature extraction, principal component analysis), biomedical data regression, classification, and clustering

WJHU Student Radio Executive Board Member – Tech Director **(2017 – present)**

- Built and setup online radio streaming platform for 24/7 broadcasting of WJHU
- Responsible for maintaining equipment and troubleshooting any technical issues with broadcasting

PUBLICATIONS AND PRESENTATIONS

A. Slepyan and N. Thakor '*Towards scalable soft e-skin* - Flexible event-based tactile sensors using wireless sensor elements embedded in soft elastomer'

- *Submitted to BioRob 2020 (IEEE RAS/EMBS International Conference on Biomedical Robotics & Biomechatronics)*
- Filing patent application through Johns Hopkins Tech Ventures (JHTV)

A. Slepyan *et al* 'A biomimetic soft finger for palpation applications'

- Published in conference proceedings of Do Good Robotics Symposium (DGRS) sponsored by IEEE Robotics & Automation Society (October 2019);
- Oral presentation at DGRS (October 2019)