

Isaac Macwan
Curriculum Vitae
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CURRENT POSITION

2019 – Present – Assistant Professor, Electrical and Bioengineering, Fairfield University

EDUCATION

2014 – Ph.D. Computer Science and Engineering, University of Bridgeport, Bridgeport CT

Thesis: Magnetotaxis as a Means for Nanofabrication of Bioelectronics

2008 – M.S. Electrical Engineering, University of Bridgeport, Bridgeport CT.

2005 – B.S. Electrical Engineering, Pune University, Pune, India.

ACADEMIC EMPLOYMENT

2015 – 2019 – Research Associate, Biomedical Engineering, University of Bridgeport

2015 – 2018 – Adjunct Faculty, Electrical and Biomedical Engineering, University of Bridgeport

2009 – 2014 – Instructor, Electrical and Biomedical Engineering, University of Bridgeport

PUBLICATIONS

Peer-Reviewed Journal Articles

2021 –

14. M. Xavierselvan, H. R. Divecha, M. Hajra, S. Silwal, and I. Macwan. Towards Tumor Targeting via Invasive Assay Using Magnetospirillum magneticum. *Front. Microbiol.* 12: 1949.

2020 –

13. **Macwan I**, Aphale N, Prasad S, Patra K. Detection of Cardiovascular CRP Protein Biomarker Using a Novel Nanofibrous Substrate. *Biosensors.* 10(6): 72.

2018 –

12. Ray A, **Macwan I**, Singh S, Silwal S, Patra P. A Computational Approach for Understanding the Interactions between Graphene Oxide and Nucleoside Diphosphate Kinase with Implications for Heart Failure. *Nanomater.* 8(2): 57.

2017 –

11. Xing J, Singh S, Zhao Y, [...], **Macwan I**, Patra P, Chen J. Increasing vaccine production using pulsed ultrasound waves. *Chemin I*, ed. *PLoS One.* 12(11).
10. Kokal RK, Deepa M, Kalluri A, Singh S, **Macwan I**, et al. Solar Cell with PbS Quantum Dots Sensitized TiO₂-Multiwalled Carbon Nanotubes Composite, Sulfide-Titania gel and Tin Sulfide Coated C-fabric. *Phys Chem Chem Phys.* 19(38).

9. Kolay A, Kokal RK, Kalluri A, **Macwan I**, et al. New Antimony Selenide / Nickel Oxide Photocathode Boosts the Efficiency of Graphene Quantum Dots Co-Sensitized Solar Cell. *ACS Appl Mater Interfaces*. 9(40): 34915-34926.
8. Ozden S, **Macwan I**, Owuor PS, et al. Bacteria as Bio-Template for 3D Carbon Nanotube Architectures. *Sci Rep*. 7(1): 9855.
7. **Macwan I**, Khan MDH, Aphale A, et al. Interactions between avidin and graphene for development of a biosensing platform. *Biosens Bioelectron*. 89: 326-333.

2016 –

6. **Macwan I**, Zhao Z, Sobh OT, Mukerji I, Dharmadhikari B, Patra PK. Residue Specific and Chirality Dependent Interactions between Carbon Nanotubes and Flagellin. *IEEE/ACM Trans Comput Biol Bioinforma*. 13(3): 541-548.
5. Aphale AN, Mahakalkar K, **Macwan I**, et al. Fabrication and Experimental Analysis of Axially Oriented Nanofibers. *J Nanosci Nanotechnol*. 16(3): 2668-2676.

2014 –

4. **Macwan I**, Zhao Z, Sobh O, Rho J, Mahmood A, Patra P. Magnetotaxis as a Means for Nanofabrication. *Int J High Speed Electron Syst*. 23(01n02):1450008.

2013 –

3. Hudait MK, Zhu Y, Maurya D, Priya S, Patra PK, Ma AWK, Aphale A, **Macwan I**. Structural and band alignment properties of Al₂O₃ on epitaxial Ge grown on (100), (110), and (111)A GaAs substrates by molecular beam epitaxy. *J Appl Phys*. 113(13):134311.

2012 –

2. Li S, Aphale AN, **Macwan I**, Patra PK, Gonzalez WG, Miksovskaja J, Leblanc RM. Graphene oxide as a quencher for fluorescent assay of amino acids, peptides, and proteins. *ACS Appl Mater Interfaces*. 4(12):7069-75.
1. Bhattacharya A, Cheng J, Bhosale S, Aphale A, **Macwan I**, Patra PK, Mukerji I. UV Resonance Raman Characterization of Diphenylalanine-Graphene Nanotubes. *Spectroscopy*. 27(11):40.

AWARDS AND HONOURS

2018 – Faculty Research Poster Award, University of Bridgeport (\$1,000)

2016 – Faculty Research Poster Award, University of Bridgeport (\$1,000)

2014 – Academic Accomplishments and Services to the School of Engineering Award, University of Bridgeport.

GRANTS AND FELLOWSHIPS

2021 – 2023 – Major Research Instrument (MRI), National Science Foundation (NSF), Co-PI: Isaac Macwan (\$138,515) – Under review.

2018 – 2019 – Seed money grant, University of Bridgeport, PI: Isaac Macwan (\$3482)

2017 – 2018 – Startup request for supercomputer access, Extreme Science and Engineering Discovery Environment, XSEDE, PI: Isaac Macwan (156,000 service units worth ~\$9,360 of computing time)

2014 – 2015 – Postdoctoral Researcher, Connecticut Department of Public Health, PI: Manju Hingorani (\$165,083)

2013 – 2019 – General user access to the Center for Functional Nanomaterials, Brookhaven National Laboratory, PI: Isaac Macwan

CONFERENCES

Poster Presentations

2021 –

51. Richards, T., Connell, M., Makhlof, F., Shubber, A. & Macwan, I. “Interactions between PVA (Poly Vinyl Alcohol) and graphene oxide towards an antimicrobial non-toxic substrate.” *ACS Spring Meeting – Macromolecular Chemistry: The Second Century (virtual)*. Atlanta, GA. April 5 – 16.
50. Madigan, J., Devlin, J. & Macwan, I. “Understanding the interactions between a human mismatch repair protein, MutSbeta and a mismatched DNA.” *ACS Spring Meeting – Macromolecular Chemistry: The Second Century (virtual)*. Atlanta, GA. April 5 – 16.
49. Mehta, T., Chibuko, C. & Macwan, I. “Computational approach for elucidating the interactions between gabapentin and LAT1.” *ACS Spring Meeting – Macromolecular Chemistry: The Second Century (virtual)*. Atlanta, GA. April 5 – 16.

2020 –

48. Richards T., **Macwan I.** “Interactions Between Graphene Oxide and Pyrrole Towards Understanding the Electro-Polymerized Substrates: A Molecular Dynamics Study.” Virtual Spring/ Fall Meeting of the Material Research Society. Boston, MA. November 27th – December 4th.
47. Zaznaev A., **Macwan I.** “Molecular Interactions of Graphene Oxide with Nucleoside Diphosphate Kinase in Heart Failure.” Annual Meeting of the Biomedical Engineering Society (virtual). San Diego, CA. October 15th.
46. Syed Mustafa M. T., Zaznaev A., **Macwan I.**, Sundarram S. “Fabrication of Polylactic Acid – Alumina Composite Filament for 3D Printing: An Experimental and Computational Study.” American Society for Engineering Education North East Conference (virtual). University of Bridgeport. Bridgeport, CT. October 16th.

2019 –

45. Divecha H., Hajra M., **Macwan I.** “Targeting Tumor Cells Using Magnetospirillum magneticum (AMB-1).” Annual Meeting of the Biomedical Engineering Society. Philadelphia, PA. October 17th.

2018 –

44. Patra P., Zuo T., Shen K., Li X., Peter S., Tiwary C., Ajayan P., **Macwan I.** “Fabrication of concussion resistant nanocomposites.” Annual Meeting of the Biomedical Engineering Society. Atlanta, GA. October 17th.
43. Hemmanur K., Karimbanamlayil Babu S. R., Patra P., **Macwan I.** “Graphene patterned microchip for colorectal cancer detection.” Annual Meeting of the Biomedical Engineering Society. Atlanta, GA. October 18th.

42. Ayoola A., Saldanha S., Patra P., **Macwan I.** "Size dependent interactions of graphene quantum dots with tumor related proteins." Annual Meeting of the Biomedical Engineering Society. Atlanta, GA. October 17th.
41. Sehmus Ozden, **Isaac Macwan**, Peter S Owuor, Suppanat Kosolwattana, Chandra S Tiwary, Pedro AS Autreto, Robert Vajtai, Aditya Mohite, Prabir K Patra, Pulickel M Ajayan. "Bacteria promoted 3D-nanotube structure for supercapacitor applications." 255th National Meeting of the American Chemical Society. New Orleans LA. March 18th.
40. D. Marwah, P. Patra, **I. Macwan**. "Interactions of Gabapentin with LAT1 Transporter in Blood Brain Barrier Using Molecular Dynamics." WPC - 4th Annual Blood Brain Barrier – New Understanding, Strategy Tools to Deliver Therapeutics to the Brain. Boston MA. June 19th.
39. S. Karimbanamlayil Babu, K.C. Hemmanur, **I. Macwan**, P. Patra. "Molecular Interactions Between Mismatch Repair Protein MutS and DNA from the Perspective of Colorectal Cancer." American Physical Society April Meeting. April 16th.
38. R. Patel, A. Petrus, **I. Macwan**. "A Bioengineered Memory Device using Bacteriorhodopsin and Graphene." American Physical Society April Meeting. April 16th.

2017 –

37. Kalluri A, Leighton D, **Macwan I**, Patra P, "Fabrication of Flexible and High-Performance Graphene Quantum Dot-Polypyrrole (GQD-PPy) Nanocomposites for Hybrid Supercapacitor Electrodes." Material Research Society Fall Meeting. Boston MA. November 30th.
36. Silwal S, Xavierselvan M, Patra P, **Macwan I**, "Tumor Cell Invasion Using FPGA Based Directional Control of Magnetospirillum Magneticum." Material Research Society Fall Meeting. Boston MA. November 28th.
35. Singh S, Choudhury I, Patra P, **Macwan I**. "Study of Interactions Between Carbon Nanotubes and a Flagellin-Specific Library of Tripeptides." Annual Meeting of the Biomedical Engineering Society. Phoenix, AZ. October 11th.
34. Kalluri A, Leighton D, Singh S, **Macwan I**, Patra P. "Fabrication of Novel and High-Performance Graphene Quantum Dot-Polypyrrole (GQD-Ppy) Nanocomposites for Hybrid Supercapacitor Electrodes." Annual Meeting of the Biomedical Engineering Society. Phoenix, AZ. October 11th.
33. Hemmanur K, Karimbanamlayil Babu S, Singh S, **Macwan I**, Patra P. "Graphene Patterned Microchip for Colorectal Cancer Detection." Annual Meeting of the Biomedical Engineering Society. Phoenix, AZ. October 12th.
32. Ray A, **Macwan I**, Singh S, Patra P, Silwal S. "Understanding the interaction between graphene oxide and NDPK: A novel low-cost approach to treating heart failure." 254th National Meeting of the American Chemical Society. Washington DC. August 26th.
31. Kalluri A, Leighton D, Singh S, **Macwan I**, Patra P. "Bioconjugated Graphene Quantum Dots (B-GQDs) nanoprobe synthesis for imaging applications." 254th National Meeting of the American Chemical Society. Washington DC. August 24th.
30. Marsale T, Patra P, Halim U, Singh S, **Macwan I**. "Multi-Dimensional Biopolymer Embedding Using Custom Built 3D Bio-Printer." 3D Bioprinting: Physical & Chemical Processes. Winston Salem, NC. May 3rd.
29. X. Xiong, P. Patra, J. Hu, **I. Macwan**, P. Wu. "Biochip with Cu-Graphene Glassy Carbon Electrode for Glucose Sensing." Proceedings of 2017 Zone I Conference of the American Society for Engineering Education. University of Massachusetts, Lowell MA. April 27th.

28. U. Halim, T. Marsale, A. Khamaiseh, **I. Macwan**, P. Patra. "Multi-Dimensional Biopolymer Embedding By Temperature Controlled 3D Bio-printing." Proceedings of 2017 Zone I Conference of the American Society for Engineering Education. University of Massachusetts, Lowell MA. April 28th.
27. A. Kalluri, S. Singh, D. Leighton, **I. Macwan**, P. Patra. "Synthesis and Fabrication of Graphene Quantum Dots-Polypyrrole (GQDs-PPy) Nanocomposites in Bioengineering Applications as Supercapacitors and Fluorescent Probes." Proceedings of 2017 Zone I Conference of the American Society for Engineering Education. University of Massachusetts, Lowell MA. April 27th.
26. S. Singh, I. Choudhury, I. Macwan, P. Patra. "Study of interactions between single-walled carbon nanotubes and a flagellin specific library of tripeptides." Proceedings of 2017 Zone I Conference of the American Society for Engineering Education. University of Massachusetts, Lowell MA. April 28th.
25. M. Xavierselvan, S. Silwal, I. Macwan, P. Patra. "FPGA based Directional control of MTB cells for Bioengineering applications." Proceedings of 2017 Zone I Conference of the American Society for Engineering Education. University of Massachusetts, Lowell MA. April 28th.

2016 –

24. Singh S, **Macwan I**, Patra P, "Chirality based separation of carbon nanotubes by analyzing their specific interactions with tri-peptides derived from flagellin." Material Research Society Fall Meeting. Boston MA. November 30th.
23. Amer Khamaiseh, Tejesh Marsale, Singh S, **Macwan I**, Patra P. "Dual injection multi-dimensional embedding of biopolymers using custom built 3D bioprinter." Material Research Society Fall Meeting. Boston MA. November 29th.
22. Singh S, Kalluri A, Alturkistani O, **Macwan I**, Aphale A, Patra P. "Single step synthesis of self-assembled para aminobenzoic acid fibers with graphene nanoplatelets inclusions." Annual Meeting of the Biomedical Engineering Society. Minneapolis, MN. October 6th.
21. Singh S, Jariwala M, Alturkistani O, Kalluri A, **Macwan I**, Aphale A, Patra P. "Supercapacitive conductive nanocomposites for biosensing." Annual Meeting of the Biomedical Engineering Society. Minneapolis, MN. October 6th.
20. S. Singh, **I. Macwan**, P. Patra. "Chirality based separation of Carbon nanotubes by analyzing the specific interaction with the AMB-1 flagellin derived tri-peptide." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
19. K. Aikebaier, **I. Macwan**, P. Patra. "Directed Self-Assembly of Magnetite Through Electrospinning With Potential Applications In Nanopatterning." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
18. K. Zafar, A. Ojo, **I. Macwan**, P. Patra. "Electrically Controlled Drug Release using Graphene Based Hydrogels." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
17. M. Xavierselvan, **I. Macwan**, P. Patra. "FPGA based magnetic field control for guiding Magnetotactic bacteria." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.

16. R. Srinivasalu, **I. Macwan**, P. Patra. "Gold Nanoparticles and SiRNA Complex For Targeted Drug Delivery." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
15. O. Alturkistani, P. Patra, **I. Macwan**, A. Aphale. "Graphene Oxide-Polypyrrole Scaffolds To Promote Differentiation Of Embryonic Stem Cells Into Dopaminergic Neurons." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
14. G. R. V. Murugesan, P. Patra, S. Berna, **I. Macwan**. "Influence Of Graphene On Pcl Scaffold For Tissue Engineering Applications." Proceedings of 2016 Zone I Conference of the American Society for Engineering Education. University of Rhode Island, Kingston RI. April 29th.
13. Khan M. D, Aphale A, **Macwan I**, Liu J, Hingorani M, Patra P. "Novel DNA-Graphene based Biosensor for Colorectal Cancer Diagnosis via detection of Lynch Syndrome." Annual Meeting of the Biomedical Engineering Society. Tampa, FL (Selected as a Dream Team Poster). October 7th.

2015 –

12. **Macwan I**, Aikebaier K, Patra P. "Directed Self-Assembly of Magnetite through Electrospinning with Potential Application in Nanopatterning." Material Research Society Fall Meeting. Boston MA, 2015. December 2nd.
11. Md. D. H. Khan, Aphale A, **Macwan I**, Liu J, Hingorani M, Patra P. "Functional protein detection for DNA mismatch repair: A novel nano-biosensor for colorectal cancer diagnostics." Material Research Society Fall Meeting. Boston MA. December 3rd.

2014 –

10. **Macwan I**, Zhao Z, Patra P. "Interaction of metallic and semiconducting single-walled carbon nanotubes with flagellin." Material Research Society Fall Meeting. Boston, MA. 2014. December 4th.
9. **Macwan I**, Zhao Z, Sobh O, Patra P. "Interaction of flagellin with single-walled carbon nanotubes." Annual Meeting of the Biomedical Engineering Society. San Antonio, TX. October 23rd.
8. X. Liao, A. Aphale, **I. Macwan**, R. Wei, S. Prasad, P. Patra. "Electrospun Composite Nanofibers in Early Detection of Femtogram C- reactive protein (CRP)." Proceedings of 2014 Zone I Conference of the American Society for Engineering Education. University of Bridgeport, Bridgeport CT. April 4th.
7. A. Aphale, N. Huston, J. Prophete, **I. Macwan**, S. Bhosale, A. Bhattacharya, J. Cheng, I. Mukerji, P. Patra. "Graphene & Graphene Oxide and amyloid peptides binding and its implications in Alzheimer's disease." Proceedings of 2014 Zone I Conference of the American Society for Engineering Education. University of Bridgeport, Bridgeport CT. April 4th.

2013 –

6. **Macwan I**, Zhao Z, Aphale A, Rho J, Mahmood A, Patra P. "Magnetotaxis as a Means for Nanofabrication." Connecticut Symposium on Microelectronics and Optoelectronics. New Haven. March 13th.

2012 –

5. Aphale A, Vattipalli K, Bhosale S, **Macwan I**, Selvam A, Prasad S, Patra P. "Carbon Nanotube-polymer Deposited Micro-electrode for Ultra-small Level Detection of Protein." Material Research Society Fall Meeting. Boston, MA. October 14th.
4. Aphale A, Vattipalli K, Bhosale S, **Macwan I**, Mahakalkar K, Zhang J, Prasad S, Patra P. "Fabrication of Electrospun composite nanofibers and their application in early detection of femtogram C-Reactive Protein (CRP)." Annual International Conference in Biomedical Engineering. Atlanta, GA. October 26th.

2011 –

3. **Macwan I**, Patel S, Aphale A, Bhosale S, Rho J, Patra P. "Nanofabrication of very large scale integration (VLSI) circuits using magnetotactic bacteria." Annual Meeting of the Biomedical Engineering Society. Hartford, CT. October 13th.
2. **I. Macwan**, S. P., Ashish Aphale, Srinivas Bhosale, Jinnque Rho and Prabir Patra. "Selective Manipulation of Nanoparticles in Very Large Scale Integration (VLSI) using Magnetotactic Bacteria." Proceedings of 2011 Zone I Conference of the American Society for Engineering Education. Hartford, CT. April 29th.

2007 –

1. S. Prasad, **I. Macwan**, and X. Xiong. "A 16-bit Low Power Comparator with Logic Shut-down Techniques." American Society for Engineering Education's New England Section Conference (ASEE'07). University of Rhode Island, RI. April 20th.

Papers Presented

2014 –

8. Patel K, Aphale A, **Macwan I**, Faezipour M, Patra P. "Polycaprolactone nanofibrous materials as an efficient dry eye test strip." 2014 IEEE Healthcare Innovation Conference. 2014. October 9th.
7. **Macwan I**, Zhao Z, Sobh O, Patra P. "A flagellum based study of semiconductor nanofabrication through magnetotaxis." 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Chicago, IL. August 27th.
6. **Macwan I**, Zhao Z, Sobh O, Patra P. "Magnetotaxis for nanofabrication." Proceedings of 2014 Zone I Conference of the American Society for Engineering Education. University of Bridgeport, Bridgeport CT. April 4th.

2012 –

5. Bhosale S, Aphale A, **Macwan I**, Faezipour M, Bhosale P, Patra P. "Computer assisted detection of liver neoplasm (CADLN)." Annual International Conference of the IEEE in Medicine and Biology Society. San Diego, CA. August 29th.

2010 –

4. Bajwa, H., **Macwan, I.**, Veerapandian, V., & Chen, X. (2010). "VHDL Implementation of High-Performance and Dynamically Configured Multi-port Cache Memory." Seventh International Conference on Information Technology: New Generations. Las Vegas, NV. April 12th.

2009 –

3. **Macwan I**, Xiong X, Hmurcik L. "Dual slope ADC design from power, speed and area perspective." Proceedings of 2009 Zone I Conference of the American Society for Engineering Education. University of Bridgeport, Bridgeport CT. April 24th.
2. **Macwan I**, S Nanapaneni, X Xiong, N Gupta, "Design of Wi-Fi MAC Transmit and Receive Protocol using Verilog HDL", Proceedings of 2009 Zone I Conference of the American Society for Engineering Education. University of Bridgeport, Bridgeport, CT, April 24th.

2008 –

1. Sharma K, **Macwan I**, Zhang L, Hmurcik L, Xiong X. "Design optimization of MEMS comb accelerometer." Proceedings of 2008 Zone I Conference of the American Society for Engineering Education. United States Military Academy, West Point, NY. March 28th.

TEACHING EXPERIENCE

Undergraduate/ Graduate courses

Fairfield University (2019 – Present)

Biomedical Signal Processing. (Fall 2019, Fall 2020)
 Introduction to Electronic Circuits and Devices. (Fall 2019, Fall 2020)
 Fundamentals of Engineering. (Fall 2020)
 Biosensors (Spring 2020, Spring 2021)
 Feedback Control Systems. (Spring 2020, Spring 2021)
 Analog Electronic Design (Spring 2021)

University of Bridgeport (2006 – 2019)

General Physics Lab. (Spring 2019)
 Introduction to VLSI Design. (Fall 2018)
 Instrumental Analysis of Functional Nanomaterials. (Fall 2018, Fall 2017, Spring 2017)
 Bioelectronics. (Spring 2019, Spring 2018, Summer 2017, Fall 2016, Summer 2016)
 Biosensors. (Fall 2017, Fall 2016, Fall 2015)
 Network Analysis I. (Spring 2017)
 Controls Lab. (Fall 2016, Fall 2006)
 Microelectronic Fabrication. (Summer 2016, Summer 2015, Summer 2011)
 Digital Electronics. (Spring 2016)
 Digital VLSI. (Spring 2016, Spring 2015)
 Magneto-Bioengineering. (Spring 2016, Fall 2015, Fall 2011)
 Radio – Frequency VLSI. (Fall 2015)
 Calculus and Analytical Geometry I. (Spring 2015)
 Field Programmable Gate Arrays. (Fall 2013)
 Controls Theory. (Spring 2010, Fall 2012)
 Analog VLSI. (Fall 2009)
 Digital Signal Processing Lab. (Spring 2007)

Supervised Student Research

Fairfield University (2019 – Present)

Senior Design Projects (AY 2019 – 2020, AY 2020 – 2021)
 Independent study (Spring 2021)
 Supervised 7 other independent research projects involving 10 students.

Student Awards/ Grants:

2021 – 2022 – Goldwater Scholarship, Barry Goldwater Scholarship and Excellence in Education Foundation, Student: Jenna Madigan

2020 – 2022 – Corrigan Scholars Program, Student: Jenna Madigan

2020 – 2021 – Research and Travel grant, Hardiman Scholars Fund, Student: Andrey Zaznaev

2020 – 2021 – Research and Travel grant, Hardiman Scholars Fund, Senior Design Team

2020 – 2021 – Travel grant, Hardiman Scholars Fund, Student: Todd Richards

2019 – 2020 – Research and Travel grant, Hardiman Scholars Fund, Senior Design Team

University of Bridgeport (2014 – 2019)

Supervised more than 50 BS and MS student projects and thesis in Biomedical and Electrical Engineering.

Student Awards:

- Best Student Poster Award – 1st Place, Winning Experiment (Students Spaceflight Experiments Program), “The Effects of Microgravity on Nanoparticle-Cellular Interaction”, Juliano, E., Djoule, F., [Advisor: Isaac Macwan], Faculty Research Day, April 2018, Bridgeport, CT
- Best Student Poster Award – 1st Place, “The Effects of Microgravity on Nanoparticle-Cellular Interaction”, Juliano, E., [Advisor: Isaac Macwan], Faculty Research Day, April 2018, Bridgeport, CT
- Best Student Poster Award – 3rd Place, “Multi-Walled Carbon Nanotube & Polypyrrole Nanocomposite and its Interactions with AMB-1 Bacteria”, Dengelegi, J., [Advisor: Isaac Macwan], Faculty Research Day, April 2018, Bridgeport, CT
- Best Student Poster Award – Honorable Mention, “The Analysis and Application of the Emergent Electronic Properties of Self Assembling Nucleopeptide Systems”, Chapeton, K., [Advisor: Isaac Macwan], Faculty Research Day, April 2018, Bridgeport, CT
- Best Student Poster Award – 1st Place, “Study of Interactions between Single Walled Carbon Nanotubes and a Flagellin-specific Library of Tripeptides”, Singh, S., [Advisor: Isaac Macwan], Faculty Research Day, April 2017, Bridgeport, CT
- Best Student Poster Award - Honorable Mention, “Chirality based separation of Carbon nanotubes by analyzing the specific interaction with the AMB-1 flagellin derived tripeptide”, Singh, S., [Advisor: Isaac Macwan], ASEE – NE section conference 2016, April 28 – 30 2016, Kingston, RI
- Best Student Poster Award – Honorable Mention, “Bioprinting Using Dual Injection Multi-Dimensional Embedding Of Hydrogels”, Falzerano, S., [Advisor: Isaac Macwan], ASEE – NE section conference 2016, April 28 – 30 2016, Kingston, RI
- Best Student Poster Award – 2nd Place, “Directed Self-assembly of Magnetite through Electrospinning with Potential Applications in Nanopatterning”, Aikebaier, K., [Advisor: Isaac Macwan], Faculty Research Day, April 2016, Bridgeport, CT
- Best Student Poster Award – Honorable Mention, “Gold Nanoparticles and SiRNA Complex for Targeted Drug Delivery”, Srinivasalu, R., [Advisor: Isaac Macwan], Faculty Research Day, April 2016, Bridgeport, CT

- Best Student Poster Award – Honorable Mention, “Influence of Graphene on PCL Scaffolds for Tissue Engineering Applications”, Berna, S., [Advisor: Isaac Macwan], Faculty Research Day, April 2016, Bridgeport, CT

SERVICE

Fairfield University

2020 – Present – Member. Faculty Committee on Sustainability
 2020 – Present – Representative. School of Engineering Curriculum Committee.
 2020 – 2021 – Member. Faculty Search Committee for Biomedical Engineering.
 2019 – 2020 – Member. Faculty Committee on School of Engineering Applied Research.

Editorial and Reviewer Responsibilities

2021 – Present – Biomedical Engineering Society Student Chapters and Annual Meeting.
 2020 – Present – International Journal of Computer and Systems Engineering
 2018 – Present – MDPI journals including Sensors, Chemosensors, Crystals, Applied Sciences, Molecules, Electronics and Metals
 2016 – Present – Universal journal of electrical and electronic engineering (UJEEE)
 2015 – Present – International Association of Academicians, Scholars, Scientists and Engineers
 2015 – Present – Journal of Biosensors and Bioelectronics (JBB)
 2015 – Present – Elsevier Cancer Treatment Communications (CTC)

Professional Affiliations

2021 – Present – IEEE Engineering in Medicine and Biology Society (EMBS)
 2021 – Present – Biomedical Engineering Society (BMES)
 2021 – Present – American Chemical Society (ACS)
 2020 – Present – Materials Research Society (MRS)
 2017 – Present – American Society for Engineering Education (ASEE)

Educational/ Outreach Activities

2016 – Present – Team-judge. Annual Connecticut STEM Fair.
 2016 – Present – Team-judge. Science and Engineering Fair. Christian Heritage School, Trumbull CT.
 2017 – 2019 – Faculty advisor. Bridges – Friends of the Internationals. University of Bridgeport.
 01/2018 – Team-judge. Science Fair (Connecticut STEM Foundation, Inc.). Roosevelt School. Bridgeport CT.
 2017 – 2018 – Faculty mentor for the University of Bridgeport community of undergraduate students for Student Spaceflight Experiments Program (SSEP) governed by the National Center for Earth and Space Science Education (NCESSE) (**selected for the spaceflight mission12**).

RESEARCH INTERESTS

- Bio-engineered substrates for tissue engineering
- Bio-compatible nanofibers synthesis and applications

- Bio-nano-electronic Fabrication
- Molecular dynamics simulations – Computational Biophysics & Biochemistry
- Biomolecule – nanoparticle interactions
- Bacterial assisted controlled assembly