

Blake N. Johnson, Ph.D.

Curriculum Vitae

Academic Appointments

Virginia Tech 2015 – present
Assistant Professor – Department of Industrial and Systems Engineering
Affiliated Professor – Department of Chemical Engineering
– Department of Materials Science and Engineering
– Macromolecular and Interfaces Institute
– School of Neuroscience
– Faculty of Health Sciences
– Interdisciplinary Graduate Education Program (IGEP) for Regenerative Medicine
– Interdisciplinary Graduate Education Program (IGEP) for Computational Tissue Engineering

Education

Princeton University 2013 – 2015
Postdoctoral Associate – Department of Mechanical and Aerospace Engineering

Drexel University 2008 – 2013
Ph.D. Chemical Engineering
Awarded Best Dissertation in Mathematical and Biological Sciences

University of Wisconsin - Madison 2003 – 2008
B.S. Chemical Engineering
Additional Certificate: Chemistry
International Exchange Program - University of Oviedo, Spain, 2007
Chemical Eng. Operations and Process Laboratory
Instructor: Professor Charles Hill, Jr. (University of Wisconsin-Madison)

Journal Publications

- 1) Alexander P. Haring, Manjot Singh, Mihar Koh,[#] Ellen Cesewski, David Dillard, Zhenyu Kong & **Blake N. Johnson**^{*}, Real-time Characterization of Hydrogel Viscoelastic Properties and Sol-Gel Phase Transitions using Cantilever Sensors, *Journal of Rheology*, In Press, 2020.
- 2) Ellen Cesewski and **Blake N. Johnson**^{*}, Electrochemical Biosensors for Pathogen Detection, *Biosensors and Bioelectronics*, In Press, 112214 (2020). *IF* ~ 9.5
- 3) Alexander P. Haring[†], Emily Thompson[†], Sahil Laheri[#], Raymundo Hernandez, Megan E. Harrigan, Taylor Lear, Harald Sontheimer, & **Blake N. Johnson**^{*}, 3D Printed Competitive

Migration Assays with Spatially-programmable Release Sources, *Advanced Biosystems* **4**, 1900225 (2020). *IF* ~ 6

- 4) Yuxin Tong, Ezgi Kucukdeger, Justin Halper, Ellen Cesewski, Elena Karakozoff[#], Alexander P. Haring, David McIlvain[#], Manjot Singh, Nikita Khandelwal[#], Alex Meholic[#], Sahil Laheri[#], Akshay Sharma, & **Blake N. Johnson**^{*}, Low-cost Sensor-integrated 3D Printed Personalized Prosthetic Hands for Children with Amniotic Band Syndrome: A Case Study in Sensing Pressure Distribution on an Anatomical Human-Machine Interface (AHMI) using 3D Printed Conformal Electrode Arrays, *PLOS One*, **14**, e00214120 (2019). *IF* ~ 2.7

Highlighted at the Smithsonian Institute's National Museum of American History (ACCELERATE Festival 2019, Washington DC). Also highlighted on FOX 5 DC, [AAAS EurekaAlert](#), [3DPrintingIndustry.com](#) ("Sensing the Perfect Fit of Prosthetics") [The Engineer](#), [Science Times](#), and others.

- 5) Alexander P. Haring, Emily Thompson, Sahil Laheri[#], Yuxin Tong, Ellen Cesewski, Harald Sontheimer & **Blake N. Johnson**^{*}, Process- and Bio-inspired Hydrogels for 3D Bioprinting of Soft Free-standing Neural and Glial Tissues, *Biofabrication*, **11**, 025009 (2019). *IF* ~ 6.7
- 6) Manjot Singh, Alexander P. Haring, Yuxin Tong, Ellen Cesewski, Ross Jasper, Eric Ball, Eric Davis & **Blake N. Johnson**^{*}, 3D Printing of Solvent-cast Polymers, *ACS Applied Materials & Interfaces*, **11**, 6652-6661 (2019). *IF* ~ 8.1
- 7) Lei Zhang, Guojing Yang, **Blake N. Johnson**, & Xiaofeng Jia^{*}, Three-dimensional (3D) Printed Tissue Engineered Scaffolds for Critical-sized Bone Defect Repair, *Acta Biomaterialia*, **84**, 16-33 (2019). *IF* ~ 6.3
- 8) Jamie Murbach, Seth Currlin, Adrienne Widener, Yuxin Tong, Shrirang Chhatre Vivek Subramanian, David Martin, **Blake N. Johnson**, Kevin Otto^{*}, In Situ Polymerization of Poly(3,4-ethylene dioxythiophene) (PEDOT) for Peripheral Nerve Interfaces, *MRS Communications*, **8**, 1043-1049 (2018). *IF* ~ 2.3
- 9) Megha Trivedi, Joann Jee, Suzanila Silva, Carmel Blomgren, Vasco M. Pontinha, Dave L. Dixon, Benjamin Van Tassel, Michael J. Bortner, Christopher Williams, Eric Gilmer, Alexander P. Haring, Justin Halper, **Blake N. Johnson**, Zhenyu Kong, Matthew S. Halquist, Paul F. Rochelau, Timothy Long, Thomas Roper & Dayanjan S. Wijesinghe^{*}, Additive Manufacturing of Pharmaceuticals for Precision Medicine Applications: A Review of the Promises and Perils in Implementation, *Additive Manufacturing*, **23**, 319-328 (2018). *IF* ~ 2.9
- 10) Ellen Cesewski[†], Alexander P. Haring[†], Yuxin Tong, Michael D. Powell, Kaitlin Read, Manjot Singh, Rajan Thunkur, Sahil Laheri[#], Michael D. Powell, Kaitlin Read, Kenneth J. Oestreich & **Blake N. Johnson**^{*}, Additive Manufacturing of Three Dimensional (3D) Microelectromechanical Systems for Acoustofluidic Application, *Lab on a Chip*, **18**, 2087-2098 (2018). *IF* ~ 5.6
- 11) Alexander P. Haring, Yuxin Tong, Justin Halper & **Blake N. Johnson**^{*}, 3D Printed Polypills with Programmable Multi-component Temporal Release Profiles via Core-Shell, Multilayer, and Gradient Distributions, *Advanced Healthcare Materials*, **7**, 1800213 (2018). *IF* ~ 6.3

Selected as Back Cover of *Advanced Healthcare Materials* (2018) **7**, 16

- 12) Yuxin Tong, Jamie M. Murbach, Vivek Subramanian, Shrirang Chhatre, Francisco Delgado, David C. Martin, Kevin J. Otto, Mario Romero-Ortega, & **Blake N. Johnson**^{*}, A Hybrid 3D Printing and Robotic-assisted Embedding Approach for Design and Fabrication of Nerve Cuffs with Integrated Locking Mechanisms, *MRS Advances*, **3**, 2365-2372 (2018). *IF* ~ *N/A*
- 13) Manjot Singh[†], Yuxin Tong[†], Kelly Webster, Ellen Cesewski, Alexander P. Haring, Sahil Laheri[#], Timothy J. O'Brien, Charles H. Aardema, Bill Carswell, Ryan Senger, John L. Robertson, & **Blake N. Johnson**^{*}, 3D Printed Conformal Microfluidics for Isolation and Profiling of Biomarkers from Whole Organs, *Lab on a Chip*, **17**, 2561-2571 (2017). *IF* ~ 5.6
 Selected as Back Cover of *Lab on a Chip* (2017) **17**. Rated as top 10% article in *Lab on a Chip*. Also selected as highlighted as 3Dprint.com,
- 14) Alexander P. Haring[†], Assad Khan[†], Guoliang Liu^{*}, & **Blake N. Johnson**^{*}, 3D Printed Functionally Graded Plasmonic Constructs, *Advanced Optical Materials*, **5**, 1-9 (2017). *IF* ~ 7.4
 Selected as Front Cover of *Advanced Optical Materials* (2017) **5**, 18
- 15) Alexander P. Haring, Harald Sontheimer & **Blake N. Johnson**^{*}, Microphysiological Human Brain and Neural Systems on a Chip: Potential Alternatives to Small Animal Models and Emerging Platforms for Drug Discovery and Personalized Medicine, *Stem Cell Reviews and Reports*, **13**, 381-406 (2017). *IF* ~ 3.1
- 16) **Blake N. Johnson**^{*} & Raj Mutharasan, Acoustofluidic Particle Trapping, Manipulation, and Release using Dynamic-mode Cantilever Sensors, *Analyst*, **142**, 123-131 (2016). *IF* ~ 4.1
- 17) **Blake N. Johnson**^{*} & Xiaofeng Jia^{*}, 3D Printed Nerve Guidance Channels: Computer-aided Control of Geometry, Physical Cues, Biological Supplements and Gradients, *Neural Regeneration Research*, **11**, 1-2 (2016). *IF* ~ 0.1
- 18) Yong Lin Kong^{*}, Maneesh K. Gupta, **Blake N. Johnson**, & Michael C. McAlpine^{*}, 3D Bionic Nanodevices, *Nano Today*, **11**, 330-350, (2016). *IF* ~ 15.0
- 19) **Blake N. Johnson**[†], Karen Z. Lancaster[†], Fanben Meng, Esteban A. Engel, Yong Lin Kong, Ian B. Hogue, Lynn W. Enquist & Michael C. McAlpine^{*}, 3D printed nervous system-on-a-chip, *Lab on a Chip*, **16**, 1393-1400, (2016). *IF* ~ 6.1
- 20) **Blake N. Johnson**, Karen Z. Lancaster, Esteban A. Engel, Yong Lin Kong, Maneesh K. Gupta, Kellin Krick, Fanben Meng, Lynn W. Enquist, Xiaofeng Jia^{*} & Michael C. McAlpine^{*}, 3D printed anatomical nerve regeneration pathways, *Advanced Functional Materials*, **25**, 6205-6217 (2015). *IF* ~ 11.4
 Highlighted on NPR (Roanoke) and in [MIT Technology Review](#), [NIH News and Events - Research Matters](#), [IIE Magazine](#), the [Virginia Tech News](#), and others.
- 21) Maneesh K. Gupta, Fanben Meng, Yong Lin Kong, **Blake N. Johnson**, Nina Masters[#], Srikanth Singamaneni, & Michael C. McAlpine^{*}, 3D printed programmable release capsules, *Nano Letters*, **15**, 5321-5329 (2015). *IF* ~ 13.8
 Highlighted in [NIH National Institute of Biomedical Imaging and Bioengineering](#).

- 22) Yong Lin Kong, Ian Tamargo[#], H. Kim, **Blake N. Johnson**, Maneesh K. Gupta, T.-W. Koh, Huai-An Chin, Barry P. Rand, Daniel A. Steingart, & Michael C. McAlpine*, 3D printed quantum dot light-emitting diodes, *Nano Letters* **14**, 7017-7023 (2014). *IF* ~ 13.8
[Highlighted in Nature \(2014\) 515, 468; Nature \(2015\) 518, 42-43; and MIT Technology Review.](#)
- 23) **Blake N. Johnson** & Raj Mutharasan*, Biosensor-based microRNA detection: techniques, design, performance, and challenges. *Analyst* **139**, 1576-1588, (2014). *IF* ~ 4.1
- 24) **Blake N. Johnson** & Raj Mutharasan*, Reduction of nonspecific protein adsorption on cantilever biosensors caused by transverse resonant mode vibration. *Analyst* **139**, 12333-12341, (2014). *IF* ~ 4.1
- 25) **Blake N. Johnson** & Raj Mutharasan*, A cantilever biosensor-based assay for toxin-producing cyanobacteria *Microcystis aeruginosa* using 16S rRNA. *Environmental Science and Technology* **42**, 12333-12341, (2013). *IF* ~ 5.3
- 26) **Blake N. Johnson** & Raj Mutharasan*, Electrochemical piezoelectric-excited millimeter-sized cantilevers (ePEMCs) for simultaneous dual transduction biosensing. *Analyst* **138**, 6365-6371, (2013). *IF* ~ 4.1
- 27) **Blake N. Johnson**, Harsh Sharma, & Raj Mutharasan*, Torsional and lateral anchor cantilever sensors. *Analytical Chemistry* **85**, 1760-1766, (2013). *IF* ~ 5.6
[Highlighted in SeparationsNOW.com.](#)
- 28) **Blake N. Johnson** & Raj Mutharasan*, Regeneration of gold surfaces covered by adsorbed thiols and proteins using liquid-phase hydrogen peroxide-mediated UV-Photooxidation. *Journal of Physical Chemistry C* **117**, 1335-1341, (2013). *IF* ~ 4.5
- 29) **Blake N. Johnson** & Raj Mutharasan*, Sample preparation-free real-time detection of microRNA in human serum using piezoelectric biosensors at attomole level. *Analytical Chemistry* **84**, 10426-10436, (2012). *IF* ~ 5.6
[Highlighted in Drexel Engineering News.](#)
- 30) **Blake N. Johnson** & Raj Mutharasan*, pH Effect on protein G orientation on gold surfaces and characterization of adsorption thermodynamics. *Langmuir* **28**, 6928-6934, (2012). *IF* ~ 4.0
- 31) **Blake N. Johnson** & Raj Mutharasan*, Biosensing using dynamic-mode cantilever sensors: A review. *Biosensors and Bioelectronics* **32**, 1-18, (2012). *IF* ~ 9.5
- 32) **Blake N. Johnson** & Raj Mutharasan*, A novel experimental technique for determining node location in resonant mode sensors. *Journal of Micromechanics and Microengineering* **21**, 065027, (2011). *IF* ~ 1.7
- 33) **Blake N. Johnson** & Raj Mutharasan*, The origin of low-order and high-order impedance-coupled resonant modes in piezoelectric-excited millimeter-sized cantilever (PEMC) sensors: Experiments and finite element models. *Sensors and Actuators B: Chemical* **155**, 868-877, (2011). *IF* ~ 4.8
- 34) **Blake N. Johnson** & Raj Mutharasan*, Persistence of bending and torsional modes in piezoelectric-excited millimeter-sized cantilever (PEMC) sensors in viscous liquids – 1 to 1,000 cP. *Journal of Applied Physics* **109**, 066105, (2011). *IF* ~ 2.2

- 35) Harsh Sharma, Ramji S. Lakshmanan, **Blake N. Johnson**, & Raj Mutharasan*, Piezoelectric cantilever sensors with asymmetric anchor exhibit picogram sensitivity in liquid. *Sensors and Actuators B: Chemical* **153**, 64-70, (2011). *IF* ~ 4.8
- 36) **Blake N. Johnson** & Raj Mutharasan*, Expression of picogram sensitive bending modes in piezoelectric cantilever sensors with non-uniform electric fields generated by asymmetric electrodes. *Review of Scientific Instruments* **81**, 125108, (2010). *IF* ~ 1.3

Book Chapters

- 1) Alexander Haring & **Blake N. Johnson***, Chapter 6: Brain(s)-on-a-chip systems for modeling disease pathogenesis. In: *Organs-on-a-chip: Engineered Microenvironments for Safety and Efficacy Testing*. Editors: David Bovard, Julia Hoeng, & Manuel C. Peitsch, Elsevier, (2019). ISBN: 978-0-12-817202-5 **Invited**
- 2) Alexander P. Haring, Ellen Cesewski & **Blake N. Johnson***, Chapter 17: Piezoelectric cantilever biosensors for label-free, real-time detection of DNA and RNA. In: *Biosensors and Biodetection: Methods and Protocols, Volume 2: Electrochemical, Bioelectronic, Piezoelectric, Cellular and Molecular Biosensors*. Editors: Avraham Rasooly & Ben Prickril, Springer, (2017). **Invited**
- 3) **Blake N. Johnson** & Raj Mutharasan*, Chapter 16: Biosensors. In: *Resonant MEMS: Principles, Modeling, Implementation and Applications*. Editors: Oliver Brand, Isabelle Dufour, Stephen Heinrich, Fabien Josse, Jan G. Korvink, & Osamu Tabata, Advanced Micro & Nanosystems Series, Wiley-VHC Verlag, (2013). **Invited**

Conference Papers

- 1) Srikanthan Ramesh*, Sam Gerdes, Sharon Lau, Azadeh Mostafavi, Zhenyu Kong, **Blake Johnson**, Ali Tamayol, Prahalada Rao, Iris Rivero, Rheological, In Situ Printability and Cell Viability Analysis of Hydrogels for Muscle Tissue Engineering, 2018 Annual International Solid Freeform Fabrication (2018).
- 2) **Blake N. Johnson** & Raj Mutharasan*, The Origin of Mass-change Sensitivity within Piezoelectrically-actuated Millimeter-sized Cantilever (PEMC) sensors: Vibrational Analysis through Experiment and Finite Element Modeling, Proceedings of the COMSOL Conference, 1-5 (2009).

Patents

- 1) Michael C. McAlpine & **Blake N. Johnson**, Method of producing a 3D subject specific biomimetic nerve conduit, *US Patent 10,405,963 B2* (2019).
- 2) Raj Mutharasan, **Blake N. Johnson**, Ramji S. Lakshmanan, & Harsh Sharma, Asymmetric sensor. *US Patent 10,139,270 B2* (2018).

- 3) Michael C. McAlpine, Manu Mannoor, Yong Lin Kong, & **Blake N. Johnson**, Multi-functional hybrid devices/structures using 3D printing, *US Patent 9,517,128* (2016).
- 4) Raj Mutharasan, Sen Xu, **Blake N. Johnson**, Harsh Sharma, & Ramji S. Lakshamanan, Detection and measurement of mass change using an electromechanical resonator. *US Patent 8,809,065* (2014).

Non-Provisional Patent Applications

- 1) Raj Mutharasan & **Blake N. Johnson**, Dual-mode sensor. *US App. # 14/467,493* (2013).

Honors and Awards

- 2020 SME Ronald P. Harrelson Outstanding Young Manufacturing Engineer Award (Society of Manufacturing Engineers (SME)), 2020
- Undergraduate Research Advisor Award (Virginia Tech), 2018
- Outstanding Young Investigator Award (Institute of Industrial and Systems Engineers (IISE) Manufacturing and Design Division), 2018
- Outstanding New Assistant Professor Award (Virginia Tech), 2018
- Big Competition Award, Student Engineering Council (Virginia Tech), 2018
- Outstanding Teaching Award, Panhellenic Council (Virginia Tech), 2016
- Innovation Award (Princeton University), 2015
- Best Dissertation Award in Mathematical and Biological Sciences (Drexel University), 2013
- Chemical Engineering Award (Drexel University), 2012
- William A. Casey Memorial Scholarship (Drexel University), 2008
- William F. Vilas Merit Scholarship (University of Wisconsin), 2003

Funded Grants and Contracts

Table 1 – Summary of Sponsored Research and Grants Awarded

Funding Category	Total	Personal Share Total
<i>External</i>	\$3,037,343	\$746,043
<i>Internal/External</i>	\$40,000	\$40,000
<i>Internal</i>	\$110,000	\$70,000
Total Funded Research	\$3,187,343	\$856,043

1. **Blake N. Johnson** and Alejandro Salado, Northrop Grumman Corporation, 3D-Printing of Electronics on Thermal Blankets to Enable Fast Manufacturing and Integration of Satellites, 1 year, \$20,000, Virginia Tech, (2019). **Personal Share = 100% = \$12,500**

2. **Blake N. Johnson**, Northrop Grumman Corporation, Sensor-Process Integration for Closed-loop Controlled Conformal Additive Manufacturing on Complex Flight-Certified/Airworthy Parts in the Presence of Mechanical Disturbances, 1 year, \$20,000, Virginia Tech, (2019). **Personal Share = 100% = \$20,000**
3. **Blake N. Johnson**, Northrop Grumman Corporation, Closed-loop Controlled Tool Path Programming Algorithms for Inspection, Repair, and Post-processing Modification of Geometrically Complex Flight Certified/Airworthy Parts via Conformal Additive Manufacturing (AM), 1 year, \$20,000, Virginia Tech, (2019). **Personal Share = 100% = \$20,000**
4. **Blake N. Johnson**, Walter Lee, Bevlee Watford, David Knight, National Science Foundation (NSF); DUE-1644138; Supplement: The Virginia Tech Network for Engineering Transfer Students (VT-NETS), 4 years, \$400,612 (Total Project Budget: \$5,400,582), Virginia Tech, (2018). **Personal Share = 40% = \$184,245.**
5. Xiaofeng Jia and **Blake N. Johnson** (Collaborator role), Maryland Stem Cell Research Fund – flow through Johns Hopkins University, Novel 3D bioprinted scaffolds to promote neural crest stem cell mediated nerve regeneration, 3 years, \$300,000, Virginia Tech, (2018). **Personal Share = 1% = \$3,000.**
6. **Blake N. Johnson**, Akshay Sharma, David Dillard, Institute for Creativity Arts & Technology, Scanning-driven Design, Additive Manufacturing, and Assessment of Patient-Specific Biomedical Devices: From Personalized Prosthetics for Children with Amniotic Band Syndrome to Bio-inspired Prosthetics for Organ Transplantation, 1 year, \$20,000, Virginia Tech, (2018). **Personal Share = 100% = \$20,000.**
7. **Blake N. Johnson**, Air Force Research Laboratory (AFRL) – flow through UES, Inc., High Throughput Physical Property Extraction from Bio-engineered Protein Hydrogels via Dynamic Acoustic Analysis, 1 year, \$67,731, Virginia Tech, (2018). **Personal Share = 100% = \$67,731**
8. **Blake N. Johnson**, Student Engineering Council, Design and Fabrication of Personalized and Bio-inspired Prosthetic Devices for Children with Amniotic Band Syndrome and Smart Perfusion of Whole Organs via an Integrated Structured Light Scanning and Additive Manufacturing Process, 1 year, \$10,000, Virginia Tech, (2018). **Personal Share = 100% = \$10,000**
9. **Blake N. Johnson**, Northrop Grumman Corporation, Tool Path Programming for Inspection, Repair, and Post-processing Modification of Geometrically Complex Flight Certified/Airworthy Parts via Conformal Additive Manufacturing (AM), 1 year, \$20,000, Virginia Tech, (2018). **Personal Share = 100% = \$20,000**
10. Zhenyu Kong, **Blake Johnson**, and Haibo Zeng, National Science Foundation (NSF); Division of Civil, Mechanical and Manufacturing Innovation (CMMI)-1739318; CPS: Synergy: Collaborative Research: Smart Bio-Additive Manufacturing (Bio-AM) Systems

Through Heterogeneous Sensing based Computational Modeling and Control, 3 years, \$800,000, Virginia Tech, (2017). **Personal Share = 35% = \$280,000**

11. Kenneth Oestreich and **Blake N. Johnson**, Virginia Tech, Junior Faculty Award, A Novel Bioengineering Approach to Manufacture CAR T Cells for Immunotherapy, 2 years, \$80,000, Virginia Tech, (2017). **Personal Share = 50% = \$40,000**
12. Carolina Tallon, Celine Hin, Michael Bortner, Christopher Williams, Srinath Ekkad, Alan Druschitz, Earl Foster, Alexander Aning, **Blake N. Johnson**, Guo Quan Lu, Peizhen Lu, Shashank Priya, David Clark, & Hang Yu, Office of Naval Research (ONR), Defense University Research Instrumentation Program, Hot Isostatic Press for Advanced Manufacturing and Materials Development, \$895,000, Virginia Tech, (2016). **Personal Share = 2% = \$17,900**
13. **Blake N. Johnson**, National Science Foundation (NSF); Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET)-1650601; EAGER: Non-invasive Sensing of Superficial Organ Tissue via Conforming Multi-parametric Microfluidic Organ Biosensors (MMOBs): Shifting the Paradigm for Organ Assessment, 3 years, \$164,000, Virginia Tech, (2016). **Personal Share = 100% = \$164,000**
14. Timothy Long, Susan Duncan, Christopher Williams, Robert Moore, Amanda Morris, **Blake N. Johnson**, John Matson, Louis Madsen, Bradford Mills, Shengfeng Cheng, Madeline Schreiber, & Judy Riffle, National Science Foundation (NSF); Division of Chemistry (CHE)-1560204; REU Site:INFEWS/N/P/H2O: Materials Innovation at the intersection of Food-Energy-Water Systems (MII-FEWS), 3 years, \$350,000, Virginia Tech, (2015). **Personal Share = 1/12% = \$29,167**

Research Experience

- Virginia Tech 2015 – present
Assistant Professor
Department of Industrial and Systems Engineering
Research: Advanced biomanufacturing, biofabrication, and biosensing
- Princeton University 2013 – 2014
Postdoctoral Associate
Department of Mechanical and Aerospace Engineering
Research: 3D bioprinting and multi-material 3D printing of functional materials and devices
Sponsor: Professor Michael C. McAlpine
- Drexel University 2008 – 2013
Graduate Research Assistant
Department of Chemical and Biological Engineering
Research: Detection of cells and biomacromolecules in complex matrices using label-free hybrid biosensors

Graduate Advisor: Professor Raj Mutharasan

- Academy of Natural Sciences of Philadelphia 2012 – 2013
Research Assistant
Department of Microbiology
Research: Separation and phylogenetic characterization of algae
Sponsor: Dr. Marina Potapova
- University of Wisconsin - Madison 2007 – 2008
Research Assistant
Department of Chemical and Biological Engineering
Research: Water-free biodiesel synthesis via anion-exchange resins
Undergraduate Advisor: Professor Thatcher W. Root

Industry Experience

- ProgrAM3D, LLC (Pembroke, VA USA) 2016 – present
Founder and Chief Executive Officer
- 3DNeuroTec, LLC (Planisboro, NJ USA) 2015 – 2016
Founder and Chief Executive Officer
- Leversense, LLC (Philadelphia, PA USA) 2010 – 2012
 - *Research Scientist*
 - Role: Development of multiplexed biosensor arrays
 - Advisors: Dr. Paul Horan; Pete Nagy, M.B.A.
- Eastwood Nursing Center (Negaunee, MI USA) 2013 - Present
 - *Junior Board Member*
- Norlite Nursing Center (Marquette, MI USA) 2013 - Present
 - *Junior Board Member*

Teaching and Pedagogical Interests

- Subject Areas
 - Manufacturing and Biomanufacturing Processes, Biosensing and Biosensors, Bioprocess Engineering, Chemical Engineering, Process Modeling and Engineering Mathematics
- Pedagogy
 - Active Learning Environments for Manufacturing Education
 - Experiential Learning for Computer-aided Manufacturing and Bio-inspired Design Education

Workshops

- 1) Learning about Machine Learning Workshop for Materials Research. Macromolecules Innovation Institute, Virginia Tech, Blacksburg, VA 2019.
- 2) 4th Annual Advanced Biomanufacturing Symposium, University of Virginia, Charlottesville, VA 2019.
- 3) ICORP Short Course: *Invitation-only* NSF-sponsored Workshop to Fund Entrepreneurial Technologists to Pursue Commercialization. Virginia Tech, Blacksburg, VA 2018. **Invited**
- 4) Persh 2017: *Invitation-only* DOD-sponsored Workshop on the Interface Between Biological and Man-Made Materials. Institute for Defense Analysis, Alexandria, VA 2017. **Invited**
- 5) NSF Proposal Writing Workshop, NAMRC-MSEC Conference, Blacksburg, VA 2016.
- 6) Proposal Development Institute, Virginia Tech, 2016.
- 7) Faculty Mentoring Program, Virginia Tech, 2016.
- 8) CIDER Course Development Program, Virginia Tech, 2015.
- 9) Workshop on Microalgal Culturing. UTEX Culture Collection, University of Texas. Austin, TX 2011.
- 10) COMSOL Multiphysics Finite Element Modeling Workshop, Boston, MA, 2009.

Seminars, Colloquia and Conference Proceedings (as Speaker or Presenting Author)

- 1) High-throughput Characterization of Gel-based Materials, Air Force Research Laboratory (AFRL), Dayton, OH, December 2019. **Invited Speaker** *Upcoming*
- 2) Bio-inspired Design and Additive Manufacturing using Point Cloud Data: from Anatomical Implantable Scaffolds, Personalized Wearables, to Organ-conforming Devices, Department of Industrial Design, Virginia Tech, October 2019. **Invited Speaker**
- 3) Low-cost 3D Printed Personalized Bionic Prosthetic Hands for Children with Birth Defects, ACCelerate Creativity and Innovation Festival, Smithsonian's National Museum of American History, Washington DC, April 2019.
- 4) 3D Printed Anatomical Nerve Regeneration Pathways, *Regenerative Medicine Interdisciplinary Graduate Research Program*, Virginia Tech, Blacksburg, VA April 2018 (Oral Presentation). **Invited Speaker**
- 5) Fiber Type Targeted In Situ Polymerized Electrodes for Peripheral Nerve Interface, *Materials Research Society (MRS) Conference*, Phoenix, AZ April 2018 (Paper & Oral Presentation). **Invited Speaker**
- 6) 3D Printed Anatomical Nerve Regeneration Pathways, *3rd International Interdisciplinary 3D Conference*, University of Pécs, Pécs, Hungary, October 2017 (Oral Presentation). **Invited Keynote Speaker**
- 7) Hybrid Cantilever Biosensors for Sample Preparation-free Detection of miRNA in Human Serum, *Invitation-only* Symposium on Label-free Assay of Oncogenic/Tumor Suppressor Biomolecules, *American Chemical Society National Meeting*, Washington, DC August 2017 (Abstract & Oral Presentation). **Invited Speaker**

- 8) 3D Printed Anatomical Nerve Regeneration Pathways, *2nd International Conference on 3D Printing in Medicine*, Mainz, Germany, May 2017 (Oral Presentation). **Invited Keynote Speaker**
- 9) Emergence of 3D Printed Materials for 3D Cell Culture, Medical Implants and Imaging: Persh 2017: *Invitation-only DOD-sponsored Workshop on the Interface between Biological and Man-Made Materials*. Institute for Defense Analysis, Alexandria, VA February 2017 (Oral Presentation). **Invited Speaker**
- 10) 3D Printed Neural Systems on a Chip, *5th International Conference on Glial Biology in Medicine*, Roanoke, VA October 2016 (Oral Presentation). **Invited Speaker**
- 11) 3D Printed Nerve Regeneration Scaffolds and Nervous Systems on a Chip, *Virginia-Nordic Precision Neuroscience Conference*, Virginia Tech Carillion Research Institute, Roanoke, VA October 2016 (Poster Presentation).
- 12) 3D Printed Neural Interfaces, *Macromolecules Innovation Institute Annual Meeting*, Virginia Tech, Blacksburg, VA October 2016 (Oral Presentation). **Invited Speaker**
- 13) Additive Biomanufacturing (BioAM) Tutorial, *NAMRC-MSEC Conference*, Blacksburg, VA June 2016 (Oral Presentation). **Invited Speaker**
- 14) Macromolecules and Interfaces Institute (MII) Seminar, *Virginia Bioinformatics Institute*, Virginia Tech, Blacksburg, VA December 2015 (Oral Presentation). **Invited Speaker**
- 15) Virginia Tech Carillion Research Institute (VTCRI), Sonthimer Lab, Virginia Tech, Roanoke, VA November 2015 (Oral Presentation). **Invited Speaker**
- 16) Workshop on 3D Bioprinting in Tissue Engineering, Regenerative Medicine and Life Science: Theory and Applications, Host: Paul Gatenholm, Stanford University, CA October 2015 (Oral Presentation). **Invited Speaker**
- 17) Department of Materials Science and Engineering, Virginia Tech, Blacksburg, VA October 2015 (Oral Presentation). **Invited Speaker**
- 18) Workshop on New Developments in Laboratory Technology, Virginia Tech, Blacksburg, VA October, 2015 (Oral Presentation). **Invited Keynote Speaker**
- 19) Institute for Operations Research and Management Sciences (INFORMS), Virginia Tech Chapter, Virginia Tech, Blacksburg, VA September 2015 (Oral Presentation). **Invited Speaker**
- 20) Department of Chemical Engineering, Virginia Tech, Blacksburg, VA September 2015 (Oral Presentation). **Invited Speaker**
- 21) Department of Molecular Biology, Enquist Lab, Princeton University, Princeton, NJ May 2015 (Oral Presentation). **Invited Speaker**
- 22) Personalized Nerve Regeneration Pathways, *10th Annual Innovation Forum – Princeton University*, Princeton, NJ 2015 (Oral Presentation).
- 23) 3D printed nerve conduits for complex nerve regeneration, *American Institute of Chemical Engineers Conference*, Atlanta, GA 2014 (Abstract & Oral Presentation).
- 24) Three-Dimensional (3D) Biofabrication Approaches for Creation of Multi-Functional Nerve Guidance Channels and Organ-on-Chip Platforms for Peripheral Nerve Regeneration, *American Institute of Chemical Engineers Conference*, Atlanta, GA 2014 (Poster Presentation).

- 25) 3D printed nerve conduits for complex nerve regeneration, *DuPont Experimental Station*, Wilmington, DE 2014 (Oral Presentation).
- 26) Three-Dimensional Neural Engineering Approaches, *Bioengineering Colloquium – Princeton University*, Princeton, NJ 2014 (Oral Presentation). **Invited Speaker**
- 27) Detection of microRNA with piezoelectric cantilever sensors, *American Institute of Chemical Engineers Conference*, Pittsburg, PA 2012 (Abstract & Oral Presentation).
- 28) Effect of pH on protein G orientation on gold surfaces and characterization of adsorption thermodynamics, 244th *American Chemical Society Conference*, Philadelphia, PA 2012 (Abstract & Oral Presentation).
- 29) Role of asymmetry in piezoelectric actuators, *American Institute of Chemical Engineers Conference*, Pittsburg, PA 2012 (Abstract & Oral Presentation).
- 30) High-order modes in piezoelectric cantilever sensors. *8th International Nanomechanical Sensing Conference*, Trinity College, Dublin, Ireland 2011 (Abstract & Poster Presentation).
- 31) The origin of mass-change sensitivity in piezoelectric-excited millimeter-sized cantilever (PEMC) sensors. *COMSOL Multiphysics Conference*, Boston, MA 2009 (Paper & Oral Presentation).

Teaching Experience

At Virginia Tech:

Table 2 – Summary of Teaching and Effectiveness

Semester	Course Name	Course No.	Credit Hrs.	No. of Lab or Recitation Sections	Course Enrollment	Overall Effectiveness (Reply Rate)
Spring 2020	Additive Biomanufacturing	ISE 4984	3	0	6	N/A
Fall 2019	Manufacturing Processes Lab	ISE 2214	1	N/A	~300	N/A
Fall 2019	Manufacturing Processes	ISE 2204	3	0	86	5.62/6 (58%)
Spring 2019	Manufacturing Processes	ISE 2204	3	0	100	5.76/6 (41%)
Spring 2019	Manufacturing Processes Lab	ISE 2214	1	N/A	~300	~5.5/6 (~25%)
Fall 2018	Additive Biomanufacturing	ISE 6984	3	1	3	6.0/6 (100%)
Spring 2018	Manufacturing Processes Lab	ISE 2214	1	12	~300	5.60/6 (90%)
Fall 2017	Interdisciplinary Research in Computational Tissue Engineering	GRAD 5134	3	0	9	5.67/6 (67%)
Fall 2017	Additive Biomanufacturing	ISE 5984	3	0	14	5.77/6 (93%)

Spring 2017	Manufacturing Processes Lab	ISE 2214	1	13	303	5.75/6 (88%)
Fall 2016	Additive Biomanufacturing	ISE 5984	3	0	18	5.89/6 (100%)
Spring 2016	Manufacturing Processes	ISE 2204	3	0	97	5.66/6 (80%)
Fall 2015	Manufacturing Processes	ISE 2204	3	0	66	5.95/6 (33%)

**For comparison, averages for Overall Teaching Effectiveness are $\sim 4.9 \pm 1.3$ for the College of Engineering and 4.9 ± 1.4 for the Department of Industrial and Systems Engineering.*

- Instructor

Additive Biomanufacturing – ISE 4984
Spring 2020

Additive Biomanufacturing – ISE 6984
Fall 2018

Additive Biomanufacturing – ISE 5984
Fall 2017
Fall 2016

Manufacturing Processes – ISE 2204
Fall 2019
Spring 2019
Spring 2016
Fall 2015

Manufacturing Processes Lab – ISE 2214
Fall 2019
Spring 2019
Spring 2018
Spring 2017

Interdisciplinary Research in Computational Tissue Engineering – GRAD 5134
Fall 2019 (Primary Instructor: Padma Rajagopalan)
Fall 2017 (Primary Instructor: Padma Rajagopalan)

Undergraduate Research – ISE 4994
Fall 2017 – 2 students
Spring 2017 – 2 students
Fall 2016 – 5 students
Spring 2016 – 14 students
Fall 2015 – 9 students

- Guest Lecturer

Process Materials – CHE 4104

Fall 2016 (Instructor: Abby Whittington)

Additive Manufacturing – ME 4644/5644
Fall 2015 (Instructor: Chris Williams)

Introduction to Neuroscience Seminar – NEUR 1004
Fall 2015 (Instructor: Harald Sontheimer)

Introduction to Industrial and Systems Engineering – ISE 5204
Fall 2015 - 2019 (Instructors: Don Taylor and Eileen van Aken)

Macromolecular Science and Engineering – MACR 5015
Fall 2015 (Instructor: Tim Long)

At Drexel University:

- Guest Lecturer
Mathematical Methods in Chemical Engineering – CHE 502
Fall 2012 (Instructor: Raj Mutharasan)
- Teaching Assistant
Process Engineering Thermodynamics – CHE 206
Fall 2008

Thermodynamics of Chemical Mixtures – CHE 301
Fall 2008

Process Heat Transfer – CHE 303
Spring 2009

Mathematical Methods in Chemical Engineering – CHE 502
Fall 2009
Fall 2010
Fall 2011
Fall 2012

Advising and Mentoring Experience

Note: Peer-reviewed journal articles have been co-authored with ALL students listed (except those denoted with an asterisks).

Advising Experience

- ***Ph.D. Students***

Alexander Haring	Macromolecules (RM)	2020
Ellen Cesewski	Materials Science and Engineering	In Progress

Yuxin Tong	Industrial and Systems Engineering	In Progress
Manjot Singh	Industrial and Systems Engineering	In Progress
Ezgi Küçükdeğer	Industrial and Systems Engineering (CTE)	In Progress
Yang Liu	Macromolecules	In Progress
Junru Zhang	Industrial and Systems Engineering	In Progress

- **M.S. Students**

Non-Thesis

Rajan Thakur	Industrial and Systems Engineering	2017
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M.S. Thesis

Manjot Singh	Industrial and Systems Engineering	2017
Yuxin Tong	Industrial and Systems Engineering	2017
Kelly Webster	Mechanical Engineering	2017
	Co-advisor: John Robertson	

M. Eng.

Justin Halper	Mechanical Engineering	2018
Abhinuv Nitin Pitale	Computer Engineering	2019

- **B.S. Students**

Course Credit for Undergraduate Research

Clememce Hidalgo	Industrial and Systems Engineering	2019
Patrick O'Malley	Industrial and Systems Engineering	2018-2020
Sahil Laheri	Neuroscience	2015-2019
Niki Khandelwal	Industrial and Systems Engineering	2015-2017
Elena Karakozoff	Industrial and Systems Engineering	2015-2018
David McIlvain	Industrial and Systems Engineering	2017-2018
Alex Meholic	Industrial and Systems Engineering	2015-2017
Justin Halper	Industrial and Systems Engineering	2015-2017
Ian Trace	Mechanical Engineering (Princeton)	2013-2014

NSF-funded Research Experience for Undergraduates (NSF-REUs)

- Related to NSF-CHE-1560204

Maria Stang*	Materials Science and Engineering (Ohio State)	2016
Alex Hitomi*	Materials Science and Engineering (UC-Davis)	2017
Miharu Koh	Biochemistry (Allegheny College)	2018

- Related to NSF-CBET-1650601

Justin Halper	Industrial and Systems Engineering	2017
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Sahil Laheri	Neuroscience	2017-2018
Daniel Knapp*	Electrical Engineering	2018
Pranay Shaw*	Industrial and Systems Engineering	2018

- Related to NSF-VT-NETS

Ethan Kywe*	General Engineering	2018 - 2019
Mina Shawky*	General Engineering	2018
Nathan Lam	General Engineering	2019
Karen Perez-Serpa	General Engineering	2019
David Rwigema Makuza	General Engineering	2019

Thesis Committees and Host for Lab Rotations

- *Ph.D. Committees*

Nidhi Menon*	Translation Biology, Health, and Medicine Advisor: Caroline Jones	2015 - 2020
Garret Burks	Mechanical Engineering Advisor: Alexander Leonessa	2015 – 2019
Camden Chatham*	Mechanical Engineering Advisor: Chris Williams	2016 – 2020
Tim O'Brien	Biomedical Engineering Advisor: John Robertson	2015 – 2020
Nils Potter*	Biomedical Engineering Advisor: Mark VanDyke	2018 – 2019

- *M.S. Thesis and M. Eng. Committees*

Karuniya Mohan*	Industrial and Systems Engineering Advisor: Ran Jin	2015 – 2017
Jin Ran*	Industrial and Systems Engineering Advisor: Ran Jin	2015 – 2018

- *Educational Lab Rotations Supported*

Allison Bouslog*	Translational Biology, Medicine and Health	2016
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Internal Service – Departmental and University

- Search Committee for CY Research Professor Position for Virginia Tech-Commonwealth Center for Advanced Manufacturing, Committee Members: Zhenyu Kong, Jaime Camelio, Matt Stremmer, Alicia Durham, Blake Johnson, 2019.

- Faculty Mentor, Student Group from School of Art + Design, Project: Design and Workflow Analysis for 3DProsthetic Design Group, VT School of Art and Design, In-collaboration with Akshay Sharma
- Honors & Awards Committee, Department of Industrial and Systems Engineering, 2019-2020.
- Invited Seminar Series Committee, Department of Industrial and Systems Engineering, 2019-2020.
- Lab Tour for Engineering Faculty Organization (EFO) Inspirational Speaker at EFO Fall Meeting, Speaker: Dean Jayathi Murthy (UCLA), September 2019.
- Lab Tour for VT-NETS Program, Center for Enhancing Engineering Diversity, October 2018.
- Strategic Planning Committee, Department of Industrial and Systems Engineering, 2018-2019.
- Search Committee for Faculty Position in Automation and Robotics, Committee Members: Eileen Van Aken, Zhenyu Kong, Jaime Camelio, Alexander Leonessa, Blake Johnson, 2018.
- Faculty-Student Luncheon with Students in Virginia Tech's CEED's STEP Program, Student Host: Bemnet Molla, 2018.
- Search Committee for Technical Staff Hire, Committee Members: Joe Gabbard, Brian Burgess, Randy Waldren, Scott Lancaster, Will Vest, Eileen Van Aken, Blake Johnson, 2018.
- Search Committee for Faculty Position in Industrial Analytics for Cluster Hire in Data Decisions, Committee Members: Eileen Van Aken, Zhenyu Kong, Blake Johnson, 2018.
- Workshop on New Developments in Laboratory Technology, Virginia Tech, Blacksburg, VA October, 2015 (Oral Presentation). Invited Keynote Speaker
- Faculty Advisor for Virginia Tech SME Chapter, 2017 – present.
- Lab Tour for Department of Industrial and Systems Engineering Student Recruiting Weekend March, 2017.
- COACHE Survey of Faculty Job Satisfaction, March 2017.
- Faculty Panel on Academic Job Application and Interview Process, Virginia Tech Institute for Operations Research and the Management Sciences (INFORMS) Student Chapter, November 2016.

- Expert Interview for Cover Story by Robbie Harris (WVTF-NPR Affiliate), An Evening at Virginia Tech – SECAC, Lynn Hershman Leeson Exhibit, School of Visual Arts, October 2016
- Participating Faculty, Research and Collaboration Presentation, College of Engineering Historically Black Colleges and Universities (HBCU) Summit, October 2016
- Lab Tour for ISE Advisor Board, VA October, 2016.
- NSF Research Experience for Undergraduates, Virginia Tech, 2016 - current.
- Ph.D. Concentration Area Lead, Manufacturing Concentration on Innovative Manufacturing Processes, Department of Industrial and Systems Engineering, October 2016.
- Faculty Contact for Student Society for Hispanic Professional Engineers (SHPE), 2015-2016.
- Chair, Industrial and Systems Engineering Senior Design Symposium April, 2016.
- Center for Enhancement of Engineering Diversity (CEED) Spring Game Recruiting Initiative for Student Engineers (RISE) Event, April 2016.
- Graduate Admissions and Recruiting Committee – Department of Industrial and Systems Engineering, 2015-2018.
- International Relations Committee – Department of Industrial and Systems Engineering, 2016-2017.

At Princeton University:

- Science in Action Mentor – Princeton University, 2013
Team Targeted Drug Delivery

At Drexel University:

- Faculty Selection Committee Student Representative – Drexel University, 2012
Department of Chemical and Biological Engineering

External Service

Panels

- Reviewer for NSF Panel, Division of Undergraduate Education, Improving Undergraduate Stem Education: Education and Human Resources (IUSE: EHR), 2020. **Invited**
- Reviewer for Royal Society of New Zealand Panel, Marsden Fund Council, 2019. **Invited**
- Reviewer for European Science Foundation (ESF) ERC Panel, Neurological disorders, Molecular and cellular neuroscience, 2019. **Invited**
- Reviewer for NIH Panel, Neurological and Bioengineering Studies Specific Emphasis Panel (SEP), 2018. **Invited**
- Reviewer for Netherlands Organisation for Scientific Research (NWO) Panel, Applied and Engineering Sciences, 2017. **Invited**
- Reviewer for NSF Panel, Chemical, Bioengineering, Environmental, and Transport Systems, Nanobiosensing Program, 2017. **Invited**
- Panelist for DOD-sponsored Workshop Panel on Materials for 3D Cell Culture, Medical Implants, and Imaging, Persh Workshop, Institute for Defense Analysis, 2017. **Invited**
- Reviewer for NSF Panel, Chemical, Bioengineering, Environmental, and Transport Systems, Nanobiosensing Program, 2017. **Invited**
- Reviewer for NSF Panel, Chemical, Bioengineering, Environmental, and Transport Systems, Nanobiosensing Program, *Ad Hoc* Reviewer, 2017. **Invited**

Educational/Training Workshops

- Naval Air Systems Command (NAVAIR), Virginia Tech Continuing and Professional Education, Advanced Manufacturing Processes and Technologies Short Course, Additive Biomanufacturing and 3D Structured Light Scanning, ½ Day Training, August, 2016. **Invited**
- Additive Biomanufacturing (BioAM) Tutorial, *NAMRC-MSEC Conference*, Blacksburg, VA June 2016 (Oral Presentation). **Invited Speaker**
- Workshop on 3D Bioprinting in Tissue Engineering, Regenerative Medicine and Life Science: Theory and Applications, Host: Paul Gatenholm, Stanford University, CA October 2015 (Oral Presentation). **Invited Speaker**

Conferences

- Co-organizer, Poster Session Organizer and Judge, 4th Annual Advanced Biomanufacturing Symposium, University of Virginia, October, 2019 Charlottesville, VA **Invited *In Progress***
- Co-organizer, Symposium on Synthetic Biology and Materials Manufacturing, Materials Research Society, April, 2020, Boston, MA. **Invited *In Progress***
- Co-organizer, Polymer Additive Manufacturing Session, American Institute of Chemical Engineers Conference, November, 2017, Minneapolis, MN. **Invited**
- Chair, Electrochemistry Section, Label-Free Assay of Oncogenic/Tumor Suppressor Biomolecules Symposium, *American Chemical Society National Meeting*, Washington, DC August 2017. **Invited**
- Conference Co-organizer, North American Manufacturing Research Conference (NAMRC)/Manufacturing Science and Engineering Conference (MSEC) June, 2016 Blacksburg, VA. **Invited**
- Co-chair, Electrochemical Discharge Machining (EDM) and Electrochemical Machining (ECM) Session, North American Manufacturing Research Conference (NAMRC)/Manufacturing Science and Engineering Conference (MSEC) June, 2016 Blacksburg, VA. **Invited**
- Tutorial Session on BioAdditive Manufacturing, North American Manufacturing Research Conference (NAMRC)/Manufacturing Science and Engineering Conference (MSEC) June, 2016 Blacksburg, VA. **Invited**

Scholarship

- Editorships
Biosensors (IF = 3.0)
Invited Guest Editor for Special Issue on 3D-Printed Biosensors
- Invited Manuscripts
Stem Cell Reviews and Reports
Neural Regeneration Research
- Invited Perspective Articles
 - 1) **Blake N. Johnson***, Advanced Material Dispensing Technology: A Driving Force for 3D Printing Innovations, *IIE Magazine*, **48**, 54-55 (2016).
 - 2) **Blake N. Johnson*** & Michael C. McAlpine*, From Print to Patient: 3D Printing Personalized Nerve Regeneration, *The Biochemist*, **38**, 28-31(2016).
- Invited Reviewer
Advanced Functional Materials (IF = 15.6)
Nature Communications (IF = 11.9)
Material Horizons (IF = 10.7)

Biomaterials (IF = 8.3)
Journal of Controlled Release (IF = 7.9)
ACS Sensors (IF = 6.9)
Biofabrication (IF = 6.8)
ACS Applied Materials and Interfaces (IF = 6.7)
Nanomedicine (IF = 6.5)
Acta Biomaterialia (IF = 6.0)
Advanced Healthcare Materials (IF = 5.8)
Materials and Design (IF = 5.7)
Lab on a Chip (IF = 5.5)
Molecular Pharmaceutics (IF = 4.4)
The Analyst (IF = 4.1)
Scientific Reports (IF = 4.1)
Sensors and Actuators B (IF = 4.0)
Sensors and Actuators A (IF = 2.3)
Polymers (IF = 3.6)
Polymer (IF = 3.4)
Transactions on Mechatronics (IF = 3.4)
IEEE Sensors Journal (IF = 3.1)
PLOS One (IF = 2.8)
Journal of Biomedical Science (IF = 2.7)
Smart Materials and Structures (IF = 2.5)
MRS Communications (IF = 2.3)
Sensors (IF = 2.2)
Polymer Composites (IF = 2.0)
Journal of Micromechanics and Microengineering (IF = 1.7)
Applied Biochemistry and Biotechnology (IF = 1.6)
Microsystem Technologies (IF = 0.9)
Neural Regeneration Research (IF = 0.1)
Biosensors (IF = N/A)
 NAMRC-MSEC Conference Proceedings 2016 (IF = N/A)

Community Service and Outreach & Leadership

- Low-cost 3D Printed Personalized Prosthetic Hands for Children with Birth Defects, ACCelerate Creativity and Innovation Festival, Smithsonian's National Museum of American History, Washington DC, April 2019.
- 3D Printed Prosthetic Hands for Amniotic Band Syndrome, Undergraduate Research Project (via ISE 4994 and NSF-DUE project), Blacksburg, VA 2016-present. [Highlighted on Fox \(WFXR Roanoke\); CBS \(WBDJ Roanoke\); NBC \(WSLS Roanoke\); Virginia Tech News; and VT Magazine.](#)
- 3D Scanning Tutorial, Blacksburg New School, Blacksburg, VA April, 2016.

- Engineers without Borders - Drexel University Chapter, *Miramar, El Salvador Clean Water Project*, Graduate Student Mentor, 2012.

Professional Memberships

- Institute of Industrial and Systems Engineers (IISE)
- Society of Manufacturing Engineers (SME)
- American Institute of Chemical Engineers (AIChE)
- American Chemical Society (ACS)