Jeong-Yeol Yoon
Professor, The University of Arizona

Contact Information

Address	Department of Biomedical Engineering (primary home) Department of Biosystems Engineering (split home) Department of Chemistry & Biochemistry (joint), BIO5 Institute (joint) The University of Arizona 1127 E James E Rogers Way, PO Box 210020, Tucson, Arizona 85721-0020
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Academic Education

Ph.D., 2004, University of California, Los Angeles, Biomedical Engineering (Advisor: Robin L. Garrell)
Ph.D./M.S./B.S., 1999, 1994, 1992, Yonsei University, Seoul, Korea, Chemical Engineering (Advisor: Woo-Sik Kim; Co-Advisor: Jung-Hyun Kim)

Academic Positions

Assistant, Associate, to Full Professor (Tenure-Track to Tenured) Aug 2004-present	Department of Biomedical Engineering Department of Biosystems Engineering Department of Chemistry & Biochemistry The University of Arizona
Associate Department Head for Graduate Affairs Jul 2018-June 2022	Department of Biomedical Engineering

Scholarly Activities

President Elect, President, and Immediate Past President, *Institute of Biological Engineering* (IBE) 2014-2016
Councilor-at-Large, *Institute of Biological Engineering* (IBE) 2010-2011

Program Committee Member, *IBE 2011 Conference*, Atlanta, GA
Program Chair/Co-Chair, *IBE 2010 Conference*, Cambridge, MA; *IBE 2009 Conference*, Santa Clara, CA
Program Committee Member, DS202, *2009 SPIE Defense, Security + Sensing*, Orlando, FL
Biological Engineering Executive and Steering Committee Member, BE-01 and BE-02, *2009, 2011 and 2012 ASABE Annual International Meetings*
Program Committee Member, BE-23, *2007, 2009, 2011 and 2012 ASABE Annual International Meetings*

Editorial Board Member, *Micromachines* (MDPI) 2020-present
Associate Editor, *Biosensors and Bioelectronics* (Elsevier) 2019-present
Editorial Board Member, *Scientific Reports* (Nature Publishing Group) 2015-present
Editor-in-Chief, *Journal of Biological Engineering* (IBE/BioMed Central) 2014-present
Editorial Board Member, *Journal of Biological Engineering* (IBE/BioMed Central) 2007-2013
Associate Editor, *ASABE (Biological Engineering Division)* 2008-2015
Editorial Board Member, *Resource* (ASABE) 2008-2014

Member, Institute of Biological Engineering (IBE)
Member, American Society of Agricultural and Biological Engineers (ASABE)
Member, SPIE – The International Society for Optics and Photonics
Member, Biomedical Engineering Society (BMES)
Member, American Chemical Society (ACS)

Reviewer for *ACS Nano* (ACS), *ACS Sensors* (ACS), *Advanced Healthcare Materials* (Wiley), *Advanced Materials* (Wiley), *Analytica Chimica Acta* (Elsevier), *Analytical and Bioanalytical Chemistry* (Springer), *Analytical Chemistry* (ACS), *Analytical Methods* (RSC), *Biological Engineering Transactions (formerly Biological Engineering)* (ASABE), *Biomaterials* (Elsevier), *Biomicrofluidics* (AIP), *Biosensors and Bioelectronics* (Elsevier), *Biosystems Engineering* (IAgrE/Elsevier), *Biotechnology Progress* (AIChE/Wiley), *Colloids and Surfaces* (Elsevier), *Environmental Science and Technology* (ACS), *IEEE Sensors Journal* (IEEE), *IEEE Transactions on*

Nanotechnology (IEEE), *Industrial & Engineering Chemistry Research* (ACS), *Integrative Biology* (RSC), *Journal of Agricultural and Food Chemistry* (ACS), *Journal of Biological Engineering* (IBE/BioMed Central), *Journal of Biomedical Materials Research* (Wiley), *Journal of Colloid and Interface Science* (Elsevier), *Journal of Microelectromechanical Systems* (IEEE/ASME), *Journal of Physical Chemistry* (ACS), *Journal of Virological Methods* (Elsevier), *Korean Journal of Chemical Engineering* (KIChE/Springer), *Lab on a Chip* (RSC), *Langmuir* (ACS), *Micro and Nano Letters* (IET), *Microfluidics and Nanofluidics* (Springer), *Molecular Diagnosis and Therapy* (Springer), *Nano Research* (Springer), *Nature Communications* (Nature), *Nature Nanotechnology* (Nature), *Nature Reviews Bioengineering* (Nature), *Nature Water* (Nature), *The Open Biotechnology Journal* (Bentham), *Optical Materials Express* (OSA), *RSC Advances* (RSC), *Scientific Reports* (Nature), *Sensing and Instrumentation for Food Quality and Safety* (Springer), *Sensors* (MDPI), *Sensors and Actuators* (Elsevier), *SLAS Technology (formerly JALA – Journal of Laboratory Automation)* (SLAS/SAGE), *Small* (Wiley), *Talanta* (Elsevier), *Theranostics* (Ivyspring), *Tissue Engineering* (Mary Ann Liebert), *Transactions of the ASABE* (ASABE)

Awards

Editorial Contribution Award, Springer Nature 2025
Author Service Award, Springer Nature 2025
Researcher of the Year, The University of Arizona College of Engineering 2025
Biosensors and Bioelectronics Award, First Runner-Up (2nd Prize), Elsevier 2023
Honorable Mention, Create the Future Design Contest, SAE Media Group (United Kingdom) 2022
Award for Excellence at the Student Interface, The University of Arizona College of Engineering 2021
SLAS Technology Readers Choice Award 2021
Highly Cited Author, Royal Society of Chemistry (RSC) 2019
Most Engaged Graduate Faculty Mentor, The University of Arizona Department of Biosystems Engineering 2018
Presidential Citation, Institute of Biological Engineering (IBE) 2016
ASABE Superior Paper Award 2014
Presidential Citation, Institute of Biological Engineering (IBE) 2012
Presidential Citation, Institute of Biological Engineering (IBE) 2010
Presidential Citation, Institute of Biological Engineering (IBE) 2009
Paper Competition Award, UCLA Biomedical Engineering 2003
Outstanding Dissertation Award, Yonsei University Graduate College 1998
First Prize, Paper Competition, The Korean Society of Medical and Biological Engineering 1998

Current Grants and Gifts

Tucson Water: Handheld PFAS Detection (PI, 2024-2027)
Korea Institute of Ocean Science & Technology (KIOST): Portable Micro- and Nanoplastics Detection (PI, 2023-2027)

Past Grants and Gifts

University of Arizona One Health Initiative: Machine Learning- and Paper Microfluidic-Based Classification of Nanoplastics and Identification of Biologically Interacting Molecules from Soil, Plant, Animal, and Human Samples (PI, 2024-2026)
University of Arizona Health Sciences: Sensors for Modernized Water Quality (PI, 2024-2026)
University of Arizona One Health Initiative and USDA/NIFA: Sub-PPT-level PFAS Detection from Wastewater and Its Implementation towards PFAS Removal (PI, 2023-2024)
University of Arizona Office of the Provost: Medical Device Training Program for Undergraduate and Graduate Education (PI, 2022-2024)
Aqualung Therapeutics: Smartphone- and Paper Microfluidic-Based Detection of eNAMPT from Blood (PI, 100%, 2022-2023)
Technology and Research Initiative Fund (TRIF): SARS-CoV-2 Variant (Co-PI, 10%, 2021-2022)
University of Arizona Test All Test Smart: Handheld, Rapid, Extremely Sensitive Assay of SARS-CoV-2 Infections (PI, 100%, 2020-2022)
Water and Environmental Technology (WET) Center and Tucson Water: Smartphone for Water Quality (Subaward PI, 100%, 2014-2022)
Tech Launch Arizona: Handheld, rapid, extremely sensitive assay of SARS-CoV-2 infections (PI, 67%, 2020-2021)

Korea Institute of Ocean Science & Technology (KIOST): Adapting Oil Fingerprinting Analysis with Smartphone (PI, 100%, 2018-2021)
Cardiovascular Biomedical Engineering Training Grant – NIH (Co-Director, 2016-2021; Participating PI, 2006-2016)
USDA/NIFA: Field usable THC Biosensor for Hemp Growers (PI, 100%, 2020)
NSF: LSAMP BD – University of Arizona and Western Alliance to Expand Student Opportunities (Senior Personnel, 2018-2020)
Tech Launch Arizona: Rapid and Non-Destructive Detection of Infection (PI, 100%, 2018)
BIO5 Institute: A New Way of Assaying Zika Virus through Monitoring Interfacial Effects on Paper (PI, 67%, 2016-2017)
Western Alliance to Expand Student Opportunities (WAESO) – NSF: A New Way of Assaying Zika Virus through Monitoring Interfacial Effects on Paper (PI, 2016-2017)
Southwest Environmental Health Sciences Center (SWEHSC) – NIH: Liver/Kidney-on-a-Chip for Environmental Toxicology Studies (PI, 50%, 2014-2016)
NSF: DOTS qPCR: A handheld, Rapid Molecular Diagnostic Tool for Ebola (Co-PI, 50%, 2014-2016)
Seoul VioSys: Paper Microfluidics for Urinalysis (PI, 100%, 2014-2015)
Seoul VioSys: Direct Identification/Quantification of Particulate Matter from Air Purifier (PI, 100%, 2014-2015)
Animal & Plant Quarantine Agency, South Korea: Development of Disposable and Handheld PCR Device for Veterinary Diagnostics (PI, 2012-2013)
Water Sustainability Program (WSP): Rapid, Real-Time Detection of EDC's (PI, 2013)
Arizona Commerce Authority: AZ Furnace: Fast PCR Diagnostics (PI, 2013-2014)
Tech Launch Arizona: Fast PCR Diagnostics for Blood Infection (PI, 2013)
BIO5 Institute: Nanotextured Particle-Ligand Ensembles for Enhanced Stent Endothelialization (Co-PI, 2012-2013)
Desert Tech: Real-Time, Portable Biosensor for *E. coli* (PI, 2009-2012)
Western Alliance to Expand Student Opportunities (WAESO) – NSF: Handheld Lab-on-a-Chip Biosensor for Medical/Veterinary Diagnostics (PI, 2012)
Pamela Turbeville: Low-Cost Cell-Phone-Based Medical Diagnostics (PI, 2011-2012) – *Directed Gift*
NIH: Nanoarray-Type Detection of Oct3/4 and Cdx2 Using AuNPs and E-Beam Patterns (PI, 2007-2010)
National Veterinary Research and Quarantine Service (NVRQS), South Korea: Development of Lab-on-a-Chip to Detect Infectious Agents within Livestock Barns (PI, 2007-2011)
NSF: Development of Simulation Models and Biosensors to Detect Biological Agents in Water Distribution Systems (Co-PI, 2006-2008)
UA Office of Vice President for Research: Protein Nanoarray Using Gold Nanoparticles and E-Beam Lithography (PI, 2005-2006)
Arizona Department of Commerce: Lab-on-a-Chip for Real-Time Monitoring of Water Safety (Subcontractor, 2005)
BMD, S.A.: Improving Beads Saturation and Eliminating Non-Specific Adsorption in FIDIS™ (PI, 2005)

Courses Taught at the University of Arizona

Current: BME/BE/CHEE 481B/581B Cell and Tissue Engineering; **BE/BME 447/547** Sensors and Controls
Past: BME/BE 486/586 Biomaterial-Tissue Interactions; **ABE/AME 489B/589B** Bio Micro/Nanotechnology Applications

Books

1. Jeong-Yeol Yoon and Chenxu Yu, Editors, "Machine Learning and Artificial Intelligence in Chemical and Biological Sensing," Elsevier: Amsterdam/London/Cambridge, **2024**, ISBN: 978-0-443-22001-2.
2. Jeong-Yeol Yoon, "Tissue Engineering: A Primer with Laboratory Demonstrations," Springer: Cham, Switzerland, **2022**, ISBN: 978-3-030-83695-5.
3. Jeong-Yeol Yoon, Editor, "Smartphone Based Medical Diagnostics," Elsevier: London/San Diego/Cambridge, **2020**, ISBN 978-0-12-817044-1.
4. Jeong-Yeol Yoon, "Introduction to Biosensors: From Electric Circuits to Immunosensors," Second Edition, Springer: New York, **2016**, ISBN: 978-3-319-27411-9. *Top 25% most downloaded (12,914 downloads) Springer books in 2018. Top 25% most downloaded (14,347 downloads) Springer books in 2017. Top 25% most downloaded (9,645 downloads) Springer books in 2016.*

5. Jeong-Yeol Yoon, "Introduction to Biosensors: From Electric Circuits to Immunosensors," Springer: New York, **2013**. ISBN: 978-1-4419-6021-4.

Journal Articles

* = corresponding author(s).

1. Ashley K. Mathews, Allison J. Eby, Jocelyn Reynolds, Raymond K. Wong, and Jeong-Yeol Yoon*, "Rapid Antithrombin Assay from Human Blood Plasma Utilizing Smartphone-Based Flow Observation on Paper Chips," *PLOS Digital Health*, **2026**, 5(2): e0001209.
2. Jocelyn Reynolds, Katelyn Sosnowski, Christine Carlson, Thomas D. McGuire, Will Roman, and Jeong-Yeol Yoon*, "Smartphone-Based Multispectral Autofluorescence Analysis of Bacteria Mixtures of Staphylococci Using Convolutional Neural Network," *Journal of Biological Engineering*, **2026**, 20: 15. (all authors contributed equally.)
3. Yisha Tang[+], Seung-Ju Choi[+], Chloe Thomas[+], Avery M. Miller, Griffen R. Dresbach-Hill, Bradley Khanthaphixay, Kelly A. Reynolds, and Jeong-Yeol Yoon*, "Dip and Taste PFAS to Detect and Classify from Environmental Water Samples," *Journal of Hazardous Materials*, **2026**, 503: 141051. (+ equal contribution.)
4. Tadsakamon Loima, Jeong-Yeol Yoon, and Kattika Kaarj*, "Microfluidic Sensors Integrated with Smartphones for Applications in Forensics, Agriculture, and Environmental Monitoring," *Micromachines*, **2025**, 16: 835.
5. Seung-Ju Choi[+], Min Hee Lee[+], Yan Liang, Ethan C. Lin, Bradley Khanthaphixay, Preston J. Leigh, Dong Soo Hwang*, and Jeong-Yeol Yoon*, "Machine Learning Classification of Quorum Sensing-Induced Bacterial Aggregation Using Flow Rate Assays on Paper Chips toward Bacterial Species Identification in Potable Water Sources," *Biosensors and Bioelectronics*, **2025**, 284: 117563. ([+] equal contribution.)
6. Jocelyn Reynolds and Jeong-Yeol Yoon*, "Fluorescence-Based Spectrometric and Imaging Methods and Machine Learning Analyses for Microbiota Analysis," *Microchimica Acta*, **2025**, 192: 334.
7. Safiyah Abdessalam[+], Trinity J. Hardy[+], Darya Pershina[+], and Jeong-Yeol Yoon*, "A Comparative Review of Organ-on-a-Chip Technologies for Micro- and Nanoplastics Versus Other Environmental Toxicants," *Biosensors and Bioelectronics*, **2025**, 282: 117472. ([+] equal contribution.)
8. Yisha Tang, Darya Pershina, Safiyah Abdessalam, Liam Falk, Yan Liang, Sang Hee Hong, Un Hyuk Yim*, and Jeong-Yeol Yoon*, "Low-Cost, Multispectral Machine Learning Classification of Simulated Airborne Micro/Nanoplastics," *Journal of Hazardous Materials*, **2025**, 488: 137443.
9. Bailey C. Buchanan[+], Reid S. Loeffler[+], Rongguang Liang, and Jeong-Yeol Yoon*, "Capillary Flow Velocity-Based Length Identification of PCR and RPA Products on Paper Microfluidic Chips," *Biosensors and Bioelectronics*, **2025**, 267: 116861. ([+] equal contribution.)
10. Lexi DeFord and Jeong-Yeol Yoon*, "Soil Microbiome Characterization and Its Future Directions with Biosensing," *Journal of Biological Engineering*, **2024**, 18: 50.
11. Yan Liang, Bradley Khanthaphixay, Jocelyn Reynolds, Preston J. Leigh, Melissa L. Lim, and Jeong-Yeol Yoon, "A Smartphone-Based Approach for Comprehensive Soil Microbiome Profiling," *Applied Physics Reviews*, 2024, 11(3): 031412. *Featured Article. Covered in Scilight 2024, 091107.*
12. Bailey C. Buchanan[+], Yisha Tang[+], Hannah A. Lopez, Nancy G. Casanova, Joe G.N. Garcia, and Jeong-Yeol Yoon*, "Development of a Cloud-Based Flow Rate Tool for eNAMPT Biomarker Detection," *PNAS Nexus*, **2024**, 3(5): pgae173. ([+] equal contribution.)
13. Chloe Thomas, Togzhan Spatayeva, Dawon Yu, Andrew Loh, Un Hyuk Yim*, and Jeong-Yeol Yoon*, "A Comparison of Current Analytical Methods for Detecting Particulate Matter and Micro/Nanoplastics," *Applied Physics Reviews*, **2024**, 11(1): 011313. *Featured Article. Covered in Scilight 2024, 321104.*
14. Sinyang Kim, Katelyn Sosnowski, Dong Soo Hwang*, and Jeong-Yeol Yoon*, "Smartphone-Based Microalgae Monitoring Platform Using Machine Learning," *ACS ES&T Engineering*, **2023**, 4(1): 186-195. *Supplementary Cover.*
15. Jocelyn Reynolds[+], Reid S. Loeffler[+], Preston J. Leigh, Hannah A. Lopez, and Jeong-Yeol Yoon*, "Recent Uses of Paper Microfluidics in Isothermal Nucleic Acid Amplification Tests," *Biosensors*, **2023**, 13: 885. ([+] equal contribution.)
16. Bradley Khanthaphixay[+], Lillian Wu[+], and Jeong-Yeol Yoon*, "Microparticle-Based Detection of Viruses," *Biosensors*, **2023**, 13: 820. ([+] equal contribution.)

17. Tyler Hertenstein[+], Yisha Tang[+], Alexander S. Day[+], Jocelyn Reynolds, Patrick V. Viboolmate, and Jeong-Yeol Yoon*, "Rapid and Sensitive Detection of miRNA Via Light Scatter-Aided Emulsion-Based Isothermal Amplification Using a Custom Low-Cost Device," *Biosensors and Bioelectronics*, **2023**, 237: 115444. ([+] equal contribution.) *First Runner-Up (2nd Prize), Biosensors and Bioelectronics Award. Keynote Presentation, Biosensors 2023: 33rd Anniversary World Congress on Biosensors.*
18. Sangsik Kim[+], Kamalika Samanta[+], Brandon T. Nguyen, Samantha Mata-Robles, Luciana Richer, Jeong-Yeol Yoon*, and Maria Gomes-Solecki*, "A Portable Immunosensor Provides Sensitive and Rapid Detection of *Borrelia burgdorferi* Antigen in Spiked Blood," *Scientific Reports*, **2023**, 13: 7546. ([+] equal contribution.)
19. Yisha Tang, Trinity J. Hardy, and Jeong-Yeol Yoon*, "Receptor-Based Detection of Microplastics and Nanoplastics: Current and Future," *Biosensors and Bioelectronics*, **2023**, 234: 115361.
20. Yan Liang[+], Bailey C. Buchanan[+], Bradley Khanthaphixay, Avory Zhou, Grace Quirk, Michael Worobey, and Jeong-Yeol Yoon*, "Sensitive SARS-CoV-2 Salivary Antibody Assays for Clinical Saline Gargle Samples Using Smartphone-Based Competitive Particle Immunoassay Platforms," *Biosensors and Bioelectronics*, **2023**, 229: 115221. ([+] equal contribution.)
21. Yan Liang[+], Min Hee Lee[+], Avory Zhou, Bradley Khanthaphixay, Dong Soo Hwang*, and Jeong-Yeol Yoon*, "eXtreme Gradient Boosting-Based Classification of Bacterial Mixtures in Water and Milk Using Wireless Microscopic Imaging of Quorum Sensing Peptide-Conjugated Particles," *Biosensors and Bioelectronics*, **2023**, 227: 115144. ([+] equal contribution.)
22. Soo Chung, Andrew Loh, Christian M. Jennings, Katelyn Sosnowski, Sung Yong Ha, Un Hyuk Yim*, and Jeong-Yeol Yoon*, "Capillary Flow Velocity Profile Analysis on Paper-Based Microfluidic Chips for Screening Oil Types Using Machine Learning," *Journal of Hazardous Materials*, **2023**, 447: 130806.
23. Lane E. Breshears, Samantha Mata-Robles, Yisha Tang, Jacob C. Baker, Kelly A. Reynolds, and Jeong-Yeol Yoon*, "Rapid, Sensitive Detection of PFOA with Smartphone-Based Flow Rate Analysis Utilizing Competitive Molecular Interactions during Capillary Action," *Journal of Hazardous Materials*, **2023**, 446: 130699.
24. Jeong-Yeol Yoon* and Chia-Hung Chen*, "Microfluidic Detection of Viruses for Human Health," *Biomicrofluidics*, **2022**, 16: 060401.
25. Sangsik Kim, Ciara Eades, and Jeong-Yeol Yoon*, "COVID-19 Variants' Cross-Reactivity on the Paper Microfluidic Particle Counting Immunoassay," *Analytical and Bioanalytical Chemistry*, **2022**, 414: 7957-7965. *Papers in Forefront.*
26. Yan Liang, Avory Zhou, and Jeong-Yeol Yoon*, "Machine Learning-Based Quantification of (-)-*trans*-Δ-Tetrahydrocannabinol from Human Saliva Samples on a Smartphone-Based Paper Microfluidic Platform," *ACS Omega*, **2022**, 7(34): 30064-30073.
27. Yan Liang, Avory Zhou, Candace S. Bever, Luisa W. Cheng, and Jeong-Yeol Yoon*, "Smartphone-Based Paper Microfluidic Competitive Immunoassay for the Detection of α-Amanitin from Mushrooms," *Microchimica Acta*, **2022**, 189: 322.
28. Cassidy Mannier and Jeong-Yeol Yoon*, "Progression of LAMP as a Result of the COVID-19 Pandemic: Is PCR Finally Rivaled?" *Biosensors*, **2022**, 12: 492.
29. Bailey C. Buchanan[+], Babak Safavinia[+], Lillian Wu, and Jeong-Yeol Yoon*, "Smartphone-Based Autofluorescence Imaging to Detect Bacterial Species on Laboratory Surfaces," *Analyst*, **2022**, 147: 2980-2987. ([+] equal contribution.) *Analyst HOT Articles 2022.*
30. Chenxu Yu*, Paul Takhistov*, Evangelyn Alocilja, Jose Reyes de Corcuera, Margaret W. Frey, Carmen L. Gomes, Yu J. Mao, Eric S. McLamore, Mengshi Lin, Olga V. Tsyusko-Unrine, Tzuen-Rong J. Tzeng, Jeong-Yeol Yoon, and Anhong Zhou, "Bioanalytical Approaches for the Detection, Characterization, and Risk Assessment of Micro/Nanoplastics in Agriculture and Food Systems," *Analytical and Bioanalytical Chemistry*, **2022**, 414: 4591-4612.
31. Sangsik Kim, Alexander S. Day, and Jeong-Yeol Yoon*, "Machine Learning Classification of Bacterial Species Using Mix-and-Match Reagents on Paper Microfluidic Chips and Smartphone-based Capillary Flow Analysis," *Analytical and Bioanalytical Chemistry*, **2022**, 414: 3895-3904.
32. Lane E. Breshears[+], Brandon T. Nguyen[+], Patarajarin Akarapipad[+], Katelyn Sosnowski[+], Kattika Kaarj, Grace Quirk, Jennifer L. Uhrlaub, Janko Nikolich-Zugich, Michael Worobey, and Jeong-Yeol Yoon*, "Sensitive, Smartphone-based SARS-CoV-2 Detection from Clinical Saline Gargle Samples," *PNAS Nexus*, **2022**, 1(1): pgac028. ([+] equal contribution.) *Honorable Mention – 2022 Create the Future Design Contest*

33. Patarajarin Akarapipad[+], Kattika Kaarj[+], Lane E. Breshears[+], Katelyn Sosnowski[+], Jacob Baker, Brandon T. Nguyen, Ciara Eades, Jennifer L. Uhrlaub, Grace Quick, Janko Nikolich-Zugich, Michael Worobey, and Jeong-Yeol Yoon*, "Smartphone-based Sensitive Detection of SARS-CoV-2 from Saline Gargle Samples via Flow Profile Analysis on Paper Microfluidic Chip," *Biosensors and Bioelectronics*, **2022**, 207: 114192. ([+] equal contribution.)
34. Katelyn Sosnowski, Andrew Loh, Alanna V. Zubler, Hasina Shir, Sung Yong Ha, Un Hyuk Yim*, and Jeong-Yeol Yoon*, "Machine Learning Techniques for Chemical and Type Analysis of Ocean Oil Samples via Handheld Spectrophotometer Device," *Biosensors and Bioelectronics: X*, **2022**, 10: 100128.
35. Bailey C. Buchanan and Jeong-Yeol Yoon*, "Microscopic Imaging Methods for Organ-on-a-Chip Platforms," *Micromachines*, **2022**, 13: 328.
36. Lane E. Breshears[+], Brandon T. Nguyen[+], Samantha Mata-Robles, Lillian Wu, and Jeong-Yeol Yoon*, "Biosensor Detection of Airborne Respiratory Viruses Such As SARS-CoV-2," *SLAS Technology*, **2022**, 27(1): 4-17. ([+] equal contribution)
37. Ryan Zenhausern[+], Alexander S. Day[+], Babak Safavinia, Seungmin Han, Paige E. Rudy, Young-Wook Won, and Jeong-Yeol Yoon*, "Natural Killer Cell Detection, Quantification, and Subpopulation Identification on Paper Microfluidic Cell Chromatography Using Smartphone-based Machine Learning Classification," *Biosensors and Bioelectronics*, **2022**, 200: 113916. ([+] equal contribution)
38. Sangsik Kim, Patarajarin Akarapipad, Brandon T. Nguyen, Lane E. Breshears, Katelyn Sosnowski, Jacob Baker, Jennifer L. Uhrlaub, Janko Nikolich-Zugich, and Jeong-Yeol Yoon*, "Direct Capture and Smartphone Quantification of Airborne SARS-CoV-2 on a Paper Microfluidic Chip," *Biosensors and Bioelectronics*, **2022**, 200: 113912.
39. Alexander S. Day[+], Tiffany-Heather Ulep[+], Elizabeth Budiman, Laurel Dieckhaus, Babak Safavinia, Tyler Hertenstein, and Jeong-Yeol Yoon*, "Contamination-resistant, Rapid Emulsion-based Isothermal Nucleic Acid Amplification with Mie-scatter Inspired Light Scatter Analysis for Bacterial Identification," *Scientific Reports*, **2021**, 11: 19933. ([+] equal contribution)
40. Kenneth E. Schackart III and Jeong-Yeol Yoon*, "Machine Learning Enhances the Performance of Bioreceptor-Free Biosensors," *Sensors*, **2021**, 21(16): 5519.
41. Patarajarin Akarapipad[+], Kattika Kaarj[+], Yan Liang[+], and Jeong-Yeol Yoon*, "Environmental Toxicology Assays Using Organ-on-Chip," *Annual Review of Analytical Chemistry*, **2021**, 14: 155-183. ([+] equal contribution)
42. Yan Liang and Jeong-Yeol Yoon*, "In Situ Sensors for Blood-Brain Barrier (BBB) on a Chip," *Sensors and Actuators Reports*, **2021**, 3: 100031.
43. Sangsik Kim[+], Min Hee Lee[+], Theanchai Wiwasuku, Alexander S. Day, Sujittra Youngme, Dong Soo Hwang*, and Jeong-Yeol Yoon*, "Human Sensor-inspired Supervised Machine Learning of Smartphone-based Paper Microfluidic Analysis for Bacterial Species Classification," *Biosensors and Bioelectronics*, **2021**, 188: 113335. ([+] equal contribution)
44. Sangsik Kim, Anakaren Romero-Lozano, Dong Soo Hwang*, and Jeong-Yeol Yoon*, "A Guanidinium-rich Polymer as a New Universal Bioreceptor for Multiplex Detection of Bacteria from Environmental Samples," *Journal of Hazardous Materials*, **2021**, 413: 125338.
45. Alexander S. Day, Tiffany-Heather Ulep, Babak Safavinia, Tyler Hertenstein, Elizabeth Budiman, Laurel Dieckhaus, and Jeong-Yeol Yoon*, "Emulsion-based Isothermal Nucleic Acid Amplification for Rapid SARS-CoV-2 Detection via Angle-dependent Light Scatter Analysis," *Biosensors and Bioelectronics*, **2021**, 179: 113099.
46. Eric S. McLamore*, Evangelyn Alocilja, Carmen Gomes, Sundaram Gunasekaran, Daniel Jenkins, Shoumen P.A. Datta, Yanbin Li, Yu Mao, Sam R. Nugen, Jose I. Reyes-De-Corcuera, Paul Takhistov, Olga Tsyusko, Jarad P. Cochran, Tzuen-Rong Tzeng, Jeong-Yeol Yoon, Chenxu Yu, and Anhong Zhou, "FEAST of Biosensors: Food, Environmental and Agricultural Sensing Technologies (FEAST) in North America," *Biosensors and Bioelectronics*, **2021**, 178: 113011.
47. Soo Chung[+], Lane E. Breshears[+], Alana Gonzales, Christian M. Jennings, Christina M. Morrison, Walter Q. Betancourt, Kelly A. Reynolds and Jeong-Yeol Yoon*, "Norovirus Detection in Water Samples at the Level of Single Virus Copies per Microliter Using a Smartphone-based Fluorescence Microscope," *Nature Protocols*, **2021**, 16(3): 1452-1475. ([+] equal contribution) *Highlighted in UANews, KOLD (Fox) News 13, ABC15, Arizona Public Media (PBS/NPR), Telemundo 20, Springer Nature Protocols and Methods Community, AZBio, Clinical OMICs, Tasnim News Agency, University of Arizona Health Sciences, Medical Device Network,*

SmartBrief, The Hindu Business Line, Arizona Daily Star, Agenparl, Healthcare Hygiene Magazine, Jioforme, Daily Mail, azcentral, HospiMedica.com, UNILAD, Newsbeezer.com, The Fintech Post, The Science Times, ariupolar, Brinkwire, The Medical News, infosurhoy, Bioengineer.org, ScienMag, EurekaAlert!, MedicalXpress, Scitech Daily, Metro, Smart 2.0, Press-News.org, BIO5 Institute, Global Spec Engineering 360, Inshopy, azfamily.com, Yahoo! News, ExBulletin, The News Wave Science, EdScoop, BizTucson, MWEE, Industrial Equipment News, Healthcare-in-Europe, QQ.COM, and more.

48. Ryan Zenhausern, Chia-Hung Chen*, and Jeong-Yeol Yoon*, "Microfluidic Sample Preparation for Respiratory Virus Detection: A Review," *Biomicrofluidics*, **2021**, 15: 011503.
49. Alanna V. Zubler and Jeong-Yeol Yoon*, "Proximal Methods for Plant Stress Detection Using Optical Sensors and Machine Learning," *Biosensors*, **2020**, 10(12): 193.
50. Katelyn Sosnowski[+], Patarajarin Akarapipad[+] and Jeong-Yeol Yoon*, "The Future of Microbiome Analysis: Biosensor Methods for Big Data Collection and Clinical Diagnostics," *Medical Devices & Sensors*, **2020**, 3(5): e10085. ([+]equal contribution) *Front Cover.*
51. Kattika Kaarj, Marianne Madias, Patarajarin Akarapipad, Soohee Cho and Jeong-Yeol Yoon*, "Paper-based In Vitro Tissue Chip for Delivering Programmed Mechanical Stimuli of Local Compression and Shear Flow," *Journal of Biological Engineering*, **2020**, 14: 20.
52. Kambiz Sadeghi, Jeong-Yeol Yoon and Jongchul Seo*, "Chromogenic Polymers and Their Packaging Applications: A Review," *Polymer Reviews*, **2020**, 60(3): 442-492.
53. Matthew V. Bills and Jeong-Yeol Yoon*, "Label-free Mie Scattering Identification of Tumor Tissue Using an Angular Photodiode Array," *IEEE Sensors Letters*, **2020**, 4(7): 4500704.
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Current Laboratory Personnel

Graduate Students: Jocelyn Reynolds, Lexi DeFord, Subin Lee, Janna Said, Benjamin Badalov, Boston McGarrahan, Lucas Canty, Jamie Ledbetter, Connor Tankersley, Victor Vigbedorh
Undergraduate Students: Ella Westhora, Daryl Ijaola, Mohit Kalle, Akash Ahuja, Hudson McHugh, Lindsey Street, Owen Fermoyle, Nguyen Do, Evzzen Elizade Arriaga

Past Post-Docs and Graduate Students

Lonnie J. Lucas, Ph.D., Senior Program Manager, Honeywell
Keesung Kim, Ph.D., Research Professor at Seoul National University (co-supervised with Prof. Gene A. Giacomelli)
Tremaine B. Powell, Ph.D., Dean, Engineering and Information Technology, Chattanooga State Community College
Jin-Hee Han, Ph.D., Senior Scientist at Merck
Brian C. Heinze, Ph.D., Associate, Research Development. The University of Arizona Research Development Services (RDS)
C. Christopher Stemple, M.S., Senior Manager at Raytheon Technologies
Phat L. Tran, Ph.D., Perfusionist at Northwest Healthcare and Standard University Medical Center
Hyuck-Jin Kwon, Ph.D., Medical Laboratory Technologist at Dynacare Core Laboratory
David J. You, Ph.D., M.D., Bariatric Surgeon, Advanced Surgical & Bariatrics of NJ, PA
Pei-Shih Liang, Ph.D., Agricultural Engineer at USDA-ARS
Christopher F. Fronczek, Ph.D., Quality Manager at Eaton
Jessica R. Crosby (née Gamboa), Ph.D., Clinical Specialist at Avery Therapeutics (co-supervised with Marvin J. Slepian)
Scott V. Angus, Ph.D., Lecturer at Ohio State University
Dustin K. Harshman, Ph.D., Senior Manager at Roche
Tigran Nahapetian, M.S., Staff Systems Engineer at BD
Tu San Park, Ph.D., Professor (tenured) at Kyungpook National University
Ariana M. Nicolini, Ph.D., Research Bioengineer at Air Force Research Laboratory
Vina Nguyen, M.S., Cardiovascular Perfusionist at Stanford University Medical Center
Soohee Cho, Ph.D., Global Group Marketing Manager at Abbott
Katherine E. Klug (née McCracken), Ph.D., Staff Engineer II at Davids Engineering
Robin E. Sweeney, Ph.D., Senior Product Manager at Deepcell
Benjamin Alouidor, M.S., Cardiovascular Perfusionist at Cedars-Sinai Medical Center
Soo Chung, Ph.D., Assistant Professor (tenure-track) at Seoul National University
Tiffany-Heather Ulep, Ph.D., Senior Scientist at Roche
Matthew V. Bills, Ph.D., Systems Engineer at Roche
Kattika Kaarj, Ph.D., Assistant Professor (tenure-track) at Suranaree University of Technology
Patarajarin Akarapipad, M.S., Ph.D. Student at Johns Hopkins University
Ryan Zenhausern, Ph.D., Postdoctoral Fellow at Emory University

Brandon T. Nguyen, M.S., M.D. Student at the University of Arizona (Tucson)
Alanna V. Zubler, M.S., Agricultural Engineer at USDA Natural Resources Conservation Service
Alexander S. Day, Ph.D., Clinical Imaging Data Manager at Roche
Babak Safavinia, M.S., Scientist at Roche
Tyler Hertenstein, M.S., Senior Research Assistant at Roche
Cassidy Mannier, M.S., M.D. Student at the University of Arizona (Tucson)
Avory Zhou, M.S., Test Engineer at Cook Medical
Lane E. Breshears, Ph.D., Research Scientist at Raydiant Oximetry
Sangsik Kim, Ph.D., Assistant Professor (tenure-track) at Kyungpook National University
Katelyn Sosnowski, Ph.D., Research Scientist at Ceria Therapeutics
Yan Liang, Ph.D., Postdoctoral Fellow at Mayo Clinic (Rochester)
Bailey C. Buchanan, Ph.D., Patent Examiner at United States Patent and Trademark Office (USPTO)
Allison Eby, M.S., Perfusionist at University of Miami Hospital
Christine Carlson, M.S., Laboratory Technician at USDA-ARS
Dylan McGuire, M.S., Manufacturing Engineer at Stryker
Chloe Thomas, M.S., Engineer at Dragoon Technology
Yisha Tang, Ph.D., Senior Algorithm Engineer at Roche
Ashley Mathews, M.S., Perfusionist at Stanford University Medical Center
Safiyah Abdessalam, M.S., R&D Engineer at Maduro Medical
Seung-Ju Choi, Ph.D., Assistant Professor (tenure-track) at Chungbuk National University
Trinity Hardy, M.S., Systems Engineer at Roche
Matthew Greenfield, M.S., Process Engineer at Roche
Avery Miller, M.S., TBA
Reid Loeffler, Ph.D., TBA

Past Visiting Scholars

Jae-Young Song, D.V.M., Ph.D., Division Director at Animal & Plant Quarantine Agency, Republic of Korea
Byung-Sik Kim, Ph.D., Retired, Former President at Chodang University
Hwasop Lim, Staff Writer and Deputy Director at Yonhap News Agency
Hamyong Park, Ph.D., Deputy Director at Korean Intellectual Property Office
Bumsang Kim, Ph.D., Professor at Hongik University
Tae Hoon Oh, M.D., Ph.D., Assistant Professor at Inje University Sanggye-Paik Hospital
Ho Bin Seo, Ph.D. Student at Korea University
Jongchul Seo, Ph.D., Professor at Yonsei University, Wonju
Navaporn Sritong, M.S. Student at Suranaree University of Technology
Theanchai Wiwasuku, Ph.D. Student at Khon Kaen University
Min-Hee Lee, Ph.D. Student at Pohang University of Science and Technology (POSTECH)
Sinyang Kim, Ph.D. Student at Pohang University of Science and Technology (POSTECH)
Yongtae Ahn, Ph.D., Professor at Gyeongsang National University
Yewon Cha, Undergraduate Student at Ewha Womans University
Junseong Kim, Ph.D. Student at Pohang University of Science and Technology (POSTECH)