

# Jeong-Yeol Yoon

## Professor, The University of Arizona

### Contact Information

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### Academic Education

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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

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

### Scholarly Activities

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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), *Biomechanics* (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), *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**

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Researcher of the Year, The University of Arizona College of Engineering 2025.  
 Biosensors and Bioelectronics Award, First Runner-Up (2<sup>nd</sup> 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**

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**University of Arizona Health Sciences:** Sensors for Modernized Water Quality (PI, 2024-2025)  
**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 – Postdoctoral Fellowship (PI, 2024-2026)  
**Korea Institute of Ocean Science & Technology (KIOST):** Portable Micro- and Nanoplastics Detection (PI, 2023-2027)  
**Water and Environmental Technology (WET) Center and Tucson Water:** Smartphone for Water Quality (Subaward PI, 100%, 2014-2025)

### **Past Grants and Gifts**

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**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)  
**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 FIDIST<sup>TM</sup> (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. Jocelyn Reynolds and Jeong-Yeol Yoon\*, "Fluorescence-Based Spectrometric and Imaging Methods and Machine Learning Analyses for Microbiota Analysis," *Microchimica Acta*, **2025**, 192: 334.
2. Safiyah Abdessalam<sup>+</sup>, Trinity J. Hardy<sup>+</sup>, Darya Pershina<sup>+</sup>, 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.)
3. 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.
4. Bailey C. Buchanan<sup>+</sup>, Reid S. Loeffler<sup>+</sup>, 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.)
5. Lexi DeFord and Jeong-Yeol Yoon\*, "Soil Microbiome Characterization and Its Future Directions with Biosensing," *Journal of Biological Engineering*, **2024**, 18: 50.
6. 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.*
7. Bailey C. Buchanan<sup>+</sup>, Yisha Tang<sup>+</sup>, 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.)
8. 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.*
9. 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.*
10. Jocelyn Reynolds<sup>+</sup>, Reid S. Loeffler<sup>+</sup>, 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.)
11. Bradley Khanthaphixay<sup>+</sup>, Lillian Wu<sup>+</sup>, and Jeong-Yeol Yoon\*, "Microparticle-Based Detection of Viruses," *Biosensors*, **2023**, 13: 820. (+ equal contribution.)
12. Tyler Hertenstein<sup>+</sup>, Yisha Tang<sup>+</sup>, Alexander S. Day<sup>+</sup>, 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.*
13. Sangsik Kim<sup>+</sup>, Kamalika Samanta<sup>+</sup>, 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.)
14. 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.
15. Yan Liang<sup>+</sup>, Bailey C. Buchanan<sup>+</sup>, Bradley Khanthaphixay, Ivory 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.)
16. Yan Liang<sup>+</sup>, Min Hee Lee<sup>+</sup>, Ivory 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.)
17. 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.

18. 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.
19. Jeong-Yeol Yoon\* and Chia-Hung Chen\*, "Microfluidic Detection of Viruses for Human Health," *Biomicrofluidics*, **2022**, 16: 060401.
20. 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*.
21. Yan Liang, Avory Zhou, and Jeong-Yeol Yoon\*, "Machine Learning-Based Quantification of (-)-trans- $\Delta$ -Tetrahydrocannabinol from Human Saliva Samples on a Smartphone-Based Paper Microfluidic Platform," *ACS Omega*, **2022**, 7(34): 30064-30073.
22. Yan Liang, Avory Zhou, Candace S. Bever, Luisa W. Cheng, and Jeong-Yeol Yoon\*, "Smartphone-Based Paper Microfluidic Competitive Immunoassay for the Detection of  $\alpha$ -Amanitin from Mushrooms," *Microchimica Acta*, **2022**, 189: 322.
23. Cassidy Mannier and Jeong-Yeol Yoon\*, "Progression of LAMP as a Result of the COVID-19 Pandemic: Is PCR Finally Rivalled?" *Biosensors*, **2022**, 12: 492.
24. Bailey C. Buchanan<sup>+</sup>, Babak Safavinia<sup>+</sup>, 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*.
25. 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.
26. 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.
27. Lane E. Breshears<sup>+</sup>, Brandon T. Nguyen<sup>+</sup>, Patarajarin Akarapipad<sup>+</sup>, Katelyn Sosnowski<sup>+</sup>, 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*
28. Patarajarin Akarapipad<sup>+</sup>, Kattika Kaarj<sup>+</sup>, Lane E. Breshears<sup>+</sup>, Katelyn Sosnowski<sup>+</sup>, 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.)
29. 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.
30. Bailey C. Buchanan and Jeong-Yeol Yoon\*, "Microscopic Imaging Methods for Organ-on-a-Chip Platforms," *Micromachines*, **2022**, 13: 328.
31. Lane E. Breshears<sup>+</sup>, Brandon T. Nguyen<sup>+</sup>, 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)
32. Ryan Zenhausern<sup>+</sup>, Alexander S. Day<sup>+</sup>, 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)
33. 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.

34. Alexander S. Day<sup>+</sup>, Tiffany-Heather Ulep<sup>+</sup>, 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)
35. Kenneth E. Schackart III and Jeong-Yeol Yoon\*, "Machine Learning Enhances the Performance of Bioreceptor-Free Biosensors," *Sensors*, **2021**, 21(16): 5519.
36. Patarajarin Akarapipad<sup>+</sup>, Kattika Kaarj<sup>+</sup>, Yan Liang<sup>+</sup>, and Jeong-Yeol Yoon\*, "Environmental Toxicology Assays Using Organ-on-Chip," *Annual Review of Analytical Chemistry*, **2021**, 14: 155-183. (+ equal contribution)
37. Yan Liang and Jeong-Yeol Yoon\*, "In Situ Sensors for Blood-Brain Barrier (BBB) on a Chip," *Sensors and Actuators Reports*, **2021**, 3: 100031.
38. Sangsik Kim<sup>+</sup>, Min Hee Lee<sup>+</sup>, Theanchai Wiwasuku, Alexander S. Day, Sujitra 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)
39. 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.
40. 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.
41. Eric S. McLaamore\*, 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.
42. Soo Chung<sup>+</sup>, Lane E. Breshears<sup>+</sup>, 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, Newsbeez.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.*
43. Ryan Zenhausern, Chia-Hung Chen\*, and Jeong-Yeol Yoon\*, "Microfluidic Sample Preparation for Respiratory Virus Detection: A Review," *Biomicrofluidics*, **2021**, 15: 011503.
44. Alanna V. Zubler and Jeong-Yeol Yoon\*, "Proximal Methods for Plant Stress Detection Using Optical Sensors and Machine Learning," *Biosensors*, **2020**, 10(12): 193.
45. Katelyn Sosnowski<sup>+</sup>, Patarajarin Akarapipad<sup>+</sup> 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.*
46. Kattika Kaarj, Marianne Madias, Patarajarin Akarapipad, Soohye 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.
47. Kambiz Sadeghi, Jeong-Yeol Yoon and Jongchul Seo\*, "Chromogenic Polymers and Their Packaging Applications: A Review," *Polymer Reviews*, **2020**, 60(3): 442-492.
48. 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.

49. Kattika Kaarj, Jennifer Ngo, Christina Loera, Patarajarin Akarapipad, Soohee Cho and Jeong-Yeol Yoon\*, "Simple Paper-based Liver Cell Model for Drug Screening," *BioChip Journal*, **2020**, 14(2): 218-229.
50. Matthew V. Bills, Andrew Loh, Katelyn Sosnowski, Brandon T. Nguyen, Sung Yong Ha, Un Hyuk Yim\* and Jeong-Yeol Yoon\*, "Handheld UV Fluorescence Spectrophotometer Device for the Classification and Analysis of Petroleum Oil Samples," *Biosensors and Bioelectronics*, **2020**, 159: 112193.
51. Tiffany-Heather Ulep, Ryan Zenhausern, Alana Gonzales, David S. Knoff, Paula A. Lengerke Diaz, Januario E. Castro and Jeong-Yeol Yoon\*, "Smartphone Based On-chip Fluorescence Imaging and Capillary Flow Velocity Measurement for Detecting ROR1+ Cancer Cells from Buffy Coat Blood Samples on Dual-layer Paper Microfluidic Chip," *Biosensors and Bioelectronics*, **2020**, 153: 112042.
52. Kaeun Lee, Hyunwoo Park, Sangho Baek, Seungjong Han, Dowan Kim, Soo Chung, Jeong-Yeol Yoon and Jongchul Seo\*, "Colorimetric Array Freshness Indicator and Digital Color Processing for Monitoring the Freshness of Packaged Chicken Breast," *Food Packaging and Shelf Life*, **2019**, 22: 100408.
53. Kattika Kaarj and Jeong-Yeol Yoon\*, "Methods of Delivering Mechanical Stimuli to Organ-on-a-chip," *Micromachines*, **2019**, 10(10): 700. *Highlighted in CellScale*.
54. Soo Chung, Christian M. Jennings and Jeong-Yeol Yoon\*, "Distance vs. Capillary Flow Dynamics-Based Detection Methods on Microfluidic Paper-Based Analytic Device," *Chemistry - A European Journal*, **2019**, 25(57): 13070-13077. *Frontispiece*.
55. Matthew V. Bills, Brandon T. Nguyen and Jeong-Yeol Yoon\*, "Simplified White Blood Cell Differential: An Inexpensive, Smartphone- and Paper-Based Blood Cell Count," *IEEE Sensors Journal*, **2019**, 19(18): 7822-7828.
56. Tiffany-Heather Ulep, Alexander S. Day, Katelyn Sosnowski, Alexa Shumaker and Jeong-Yeol Yoon\*, "Interfacial Effect-based Quantification of Droplet Isothermal Nucleic Acid Amplification for Bacterial Infection," *Scientific Reports*, **2019**, 9: 9629.
57. Soo Chung, Lane E. Breshears, Sean Perea, Christina M. Morrison, Walter Q. Betancourt, Kelly A. Reynolds and Jeong-Yeol Yoon\*, "Smartphone-based Paper Microfluidic Particulometry of Norovirus from Environmental Water Samples at Single Copy Level," *ACS Omega*, **2019**, 4(6): 11180-11188. *Highlighted in ACS News Release, ACS Press Conference, NPR News, UANews, KVOA (NBC) TV, Arizona Daily Star, Forbes, EurekaAlert!, BioSpace, Interlochen Public Radio, Texas Public Radio, New Hampshire Public Radio, Progressive Charlestown, News Atlas, Contagion Live, SciTechDaily, Medicine News Line, Chemistry World, DailyMail, New Scientist, PhysOrg, MedGadget, Medical Device Network, News-Medical.net, Herald Publicist, Medical News Today, Physics World, Futurity, Food Safety News, International Business Times, eHealthNews, Healthcare-in-Europe.com, Innovators Magazine, News Live, Daily Herald, Sciences et Avenir, Pourquoi Docteur, El Medico Interactivo, Arzte Zeitung, Technology.org, MEAWW, The Cleanzine, Cruise Passenger, Cruise Safely, Barfblog, MedIndia, Future Analyzing Technology, Satoshina Kamato Blog, Dong-A Ilbo, Dong-A Science, The Korea Times, News Zum, and more. Included in the virtual issue "Celebrating 5 Years of Open Access with ACS Omega" as High Online Attention article.*
58. Robin E. Sweeney, Vina Nguyen, Benjamin Alouidor, Elizabeth Budiman, Raymond K. Wong and Jeong-Yeol Yoon\*, "Flow Rate and Raspberry Pi-based Paper Microfluidic Blood Coagulation Assay Device," *IEEE Sensors Journal*, **2019**, 19(13): 4743-4751. *Top 25 Most Downloaded IEEE Sensors Journal Papers in June 2019*.
59. Katherine E. Klug<sup>+</sup>, Christian M. Jennings<sup>+</sup>, Nicholas Lytal, Lingling An and Jeong-Yeol Yoon\*, "Mie Scattering and Microparticle Based Characterization of Heavy Metal Ions and Classification by Statistical Inference Methods," *Royal Society Open Science*, **2019**, 6: 190001. (\*equal contribution)
60. Benjamin Alouidor, Robin E. Sweeney, Trinny Tat, Raymond K. Wong\* and Jeong-Yeol Yoon\*, "Microfluidic Point-of-care Ecarin Based Clotting and Chromogenic Assays for Monitoring Direct Thrombin Inhibitors," *Journal of ExtraCorporeal Technology*, **2019**, 51: 29-37.
61. Soo Chung, Lane E. Breshears and Jeong-Yeol Yoon\*, "Smartphone Near Infrared Monitoring of Plant Stress," *Computers and Electronics in Agriculture*, **2018**, 154: 93-98.
62. Kattika Kaarj, Patarajarin Akarapipad and Jeong-Yeol Yoon\*, "Simpler, Faster, and Sensitive Zika Virus Assay Using Smartphone Detection of Loop-mediated Isothermal Amplification on Paper Microfluidic Chips," *Scientific Reports*, **2018**, 8: 12438.
63. Tiffany-Heather Ulep and Jeong-Yeol Yoon\*, "Challenges in Paper-Based Fluorogenic Optical Sensing with Smartphones," *Nano Convergence*, **2018**, 5: 14.

64. Katherine E. Klug, Kelly A. Reynolds and Jeong-Yeol Yoon\*, "A Capillary Flow Dynamics-Based Sensing Modality for Direct Environmental Pathogen Monitoring," *Chemistry - A European Journal*, **2018**, 24(23): 6025-6029. *Hot Paper. Inside Cover. Highlighted in ChemistryViews Magazine.*
65. Cayla Baynes and Jeong-Yeol Yoon\*, "μPAD Fluorescence Scattering Immunoagglutination Assay for Cancer Biomarkers from Blood and Serum," *SLAS Technology (formerly JALA - Journal of Laboratory Automation)*, **2018**, 23(1): 30-43.
66. Soohee Cho, Tu San Park, Kelly A. Reynolds and Jeong-Yeol Yoon\*, "Multi-Normalization and Interpolation Protocol to Improve Norovirus Immunoagglutination Assay from Paper Microfluidics with Smartphone Detection," *SLAS Technology (formerly JALA – Journal of Laboratory Automation)*, **2017**, 22(6): 609-615.
67. Robin E. Sweeney and Jeong-Yeol Yoon\*, "Angular Photodiode Array-Based Device to Detect Bacterial Pathogens in a Wound Model," *IEEE Sensors Journal*, **2017**, 17(21) 6911-6917.
68. Ariana M. Nicolini, Tyler D. Toth, Samuel Y. Kim, M. Alejandra Mandel, David W. Galbraith and Jeong-Yeol Yoon\*, "Mie Scatter and Interfacial Tension Based Real-Time Quantification of Colloidal Emulsion Nucleic Acid Amplification," *Advanced Biosystems*, **2017**, 1(10): 1700098. *Front Cover.*
69. Robin E. Sweeney, Elizabeth Budiman and Jeong-Yeol Yoon\*, "Mie Scatter Spectra-Based Device for Instant, Contact-Free, and Specific Diagnosis of Bacterial Skin Infection," *Scientific Reports*, **2017**, 7: 4801.
70. Soohee Cho and Jeong-Yeol Yoon\*, "Organ-on-a-Chip for Assessing Environmental Toxicants," *Current Opinion in Biotechnology*, **2017**, 45: 34-42.
71. Katherine E. McCracken, Trinny Tat, Veronica Paz and Jeong-Yeol Yoon\*, "Smartphone-Based Fluorescence Detection of Bisphenol A from Water Samples," *RSC Advances*, **2017**, 7: 9237-9243.
72. Tu San Park<sup>+</sup>, Soohee Cho<sup>+</sup>, Tigran G. Nahapetian<sup>+</sup> and Jeong-Yeol Yoon\*, "Smartphone Detection of UV LED Enhanced Particle Immunoassay on Paper Microfluidics," *SLAS Technology (formerly JALA – Journal of Laboratory Automation)*, **2017**, 22(1): 7-12. (<sup>+</sup>equal contribution)
73. Ariana M. Nicolini<sup>+</sup>, Katherine E. McCracken<sup>+</sup> and Jeong-Yeol Yoon\*, "Future Developments in Biosensors for Field-Ready Zika Virus Diagnostics," *Journal of Biological Engineering*, **2017**, 11: 7. (<sup>+</sup>equal contribution)
74. Jeong-Yeol Yoon\*, "Towards the 10-Year Milestone of Journal of Biological Engineering," *Journal of Biological Engineering*, **2017**, 11: 3.
75. Katherine E. McCracken and Jeong-Yeol Yoon\*, "Recent Approaches for Optical Smartphone Sensing in Resource-Limited Settings: A Brief Review," *Analytical Methods*, **2016**, 8: 6591-6601. *Top 5% of Highly Cited in Analytical Portfolio RSC Journals in 2018.*
76. Soohee Cho, Argel Islas-Robles, Ariana M. Nicolini, Terrence J. Monks and Jeong-Yeol Yoon\*, "In Situ, Dual-Mode Monitoring of Organ-on-a-Chip with Smartphone-Based Fluorescence Microscope," *Biosensors and Bioelectronics*, **2016**, 86: 697-705.
77. Ariana M. Nicolini, Tyler D. Toth and Jeong-Yeol Yoon\*, "Tuneable Nanoparticle-Nanofiber Composite Substrate for Improved Cellular Adhesion," *Colloids and Surfaces B: Biointerfaces*, **2016**, 145: 830-838.
78. Katherine E. McCracken, Scott V. Angus, Kelly A. Reynolds\* and Jeong-Yeol Yoon\*, "Multimodal Imaging and Lighting Bias Correction for Improved μPAD-based Water Quality Monitoring via Smartphones," *Scientific Reports*, **2016**, 6: 27529.
79. Dustin K. Harshman, Brianna M. Rao, Jean E. McLain, George S. Watts and Jeong-Yeol Yoon\*, "Innovative qPCR Using Interfacial Effects to Enable Low Threshold Cycle Detection and Inhibition Relief," *Science Advances*, **2015**, 1(8): e1400061. *Highlighted in 3D Perspectives, KUAZ/KUAT (PBS/NPR) Radio, Genomeweb, BioCentury, UANews, ScienceDaily, FARS News, AZBio, Science World Report, PhysOrg, Infection Control Today, Surgical Products, Machines Like Us, Biocompare, Business Standard, 2015 Tech, Science Newslane Medicine, Medical Design Technology, Technology Networks, BioSpace, The News On Time, Deccan Chronicle, EurekaAlert!, medGadget, Pharmacy Choice, Genomeweb, The Korea Times, and more.*
80. Soohee Cho<sup>+</sup>, Tu San Park<sup>+</sup>, Tigran G. Nahapetian and Jeong-Yeol Yoon\*, "Smartphone-Based, Sensitive μPAD Detection of Urinary Tract Infection and Gonorrhea," *Biosensors and Bioelectronics*, **2015**, 74: 601-611. (<sup>+</sup> equal contribution)
81. Scott V. Angus<sup>+</sup>, Soohee Cho<sup>+</sup>, Dustin K. Harshman, Jae-Young Song and Jeong-Yeol Yoon\*, "A Portable, Shock-Proof, Surface-Heated Droplet PCR System for *Escherichia coli* Detection," *Biosensors and Bioelectronics*, **2015**, 74: 360-368. (<sup>+</sup> equal contribution)



82. Christopher F. Fronczek and Jeong-Yeol Yoon\*, "Biosensors for Monitoring Airborne Pathogens," *JALA – Journal of Laboratory Automation (presently SLAS Technology)*, **2015**, 20(4): 390-410. *2021 SLAS Technology Readers Choice Award*.
83. Pei-Shih Liang, Ariana M. Nicolini, Kimberly L. Ogden and Jeong-Yeol Yoon\*, "Use of Biosensors in Secondary Education Classrooms," *Transactions of the ASABE*, **2015**, 58(2): 181-190.
84. Ariana M. Nicolini, Christopher F. Fronczek and Jeong-Yeol Yoon\*, "Droplet-Based Immunoassay on a 'Sticky' Nanofibrous Surface for Multiplexed and Double Detection of Bacteria Using Smartphones," *Biosensors and Bioelectronics*, **2015**, 67: 560-569. *Highlighted in Genetic Engineering & Biotechnology News*.
85. Tu San Park and Jeong-Yeol Yoon\*, "Smartphone Detection of *Escherichia coli* from Field Water Samples on Paper Microfluidics," *IEEE Sensors Journal*, **2015**, 15(3): 1902-1907.
86. Pei-Shih Liang, Tu San Park and Jeong-Yeol Yoon\*, "Rapid and Reagentless Detection of Microbial Contamination within Meat Utilizing a Smartphone-Based Biosensor," *Scientific Reports*, **2014**, 4: 5953.
87. Tu San Park, Cayla Baynes, Seong-In Cho and Jeong-Yeol Yoon\*, "Paper Microfluidics for Red Wine Tasting," *RSC Advances*, **2014**, 4(46): 24356-24362. *Highlighted in RSC Advances Blog*.
88. Hyuck-Jin Kwon<sup>+</sup>, Christopher F. Fronczek<sup>+</sup>, Scott V. Angus, Ariana M. Nicolini and Jeong-Yeol Yoon\*, "Rapid and Sensitive Detection of H1N1/2009 Virus from the Aerosol Samples with a Microfluidic Immunosensor," *JALA – Journal of Laboratory Automation (presently SLAS Technology)*, **2014**, 19(3): 322-331. (+ equal contribution)
89. Christopher F. Fronczek, Tu San Park, Dustin K. Harshman, Ariana M. Nicolini and Jeong-Yeol Yoon\*, "Paper Microfluidic Extraction and Direct Smartphone-Based Identification of Pathogenic Nucleic Acid from Field and Clinical Samples," *RSC Advances*, **2014**, 4(22): 11103-11110.
90. C. Christopher Stemple<sup>+</sup>, Scott V. Angus<sup>+</sup>, Tu San Park and Jeong-Yeol Yoon\*, "Smartphone-Based Optofluidic Lab-on-a-Chip for Detecting Pathogens from Blood," *JALA – Journal of Laboratory Automation (presently SLAS Technology)*, **2014**, 19(1): 35-41. (+ equal contribution)
91. Dustin K. Harshman, Roberto Reyes, Tu San Park, David J. You, Jae-Young Song and Jeong-Yeol Yoon\*, "Enhanced Nucleic Acid Amplification with Blood in Situ by Wire-Guided Droplet Manipulation (WDM)," *Biosensors and Bioelectronics*, **2014**, 53: 167-174.
92. Jeong-Yeol Yoon\*, "Smartphone-Based Lab-on-a-Chip Sensor for Flu Detection," *Resource*, **2014**, 21(1), 20-22.
93. Tu San Park, Wenye Li, Katherine E. McCracken and Jeong-Yeol Yoon\*, "Smartphone Quantifies Salmonella from Paper Microfluidics," *Lab on a Chip*, **2013**, 13(24): 4832-4840.
94. Phat L. Tran, Jessica R. Gamboa, Katherine E. McCracken, Mark R. Riley, Marvin J. Slepian\* and Jeong-Yeol Yoon\*, "Nanowell-Trapped Charged Ligand-Bearing Nanoparticle Surfaces - A Novel Method of Enhancing Flow-Resistant Cell Adhesion," *Advanced Healthcare Materials*, **2013**, 2(7): 1019-1027. *Back cover. Highlighted in UANews*.
95. Katherine E. McCracken, Phat L. Tran, David J. You, Marvin J. Slepian and Jeong-Yeol Yoon\*, 2013. "Shear- vs. Nanotopography-Guided Control of Growth of Endothelial Cells on RGD-Nanoparticle-Nanowell Arrays," *Journal of Biological Engineering*, **2013**, 7: 11.
96. Pei-Shih Liang and Jeong-Yeol Yoon\*, "Optofluidic Lab-on-a-chip Monitoring of Subsurface Bacterial Transport," *Biological Engineering Transactions*, **2013**, 6(1): 17-28. *Featured in ASABE Publications and Arizona Engineer. Received 2014 ASABE Superior Paper Award*.
97. Jessica R. Gamboa, Samir Mohandes, Phat L. Tran, Marvin J. Slepian\* and Jeong-Yeol Yoon\*, "Linear Fibroblast Alignment on Sinusoidal Wave Micropatterns," *Colloids and Surfaces B: Biointerfaces*, **2013**, 104: 318-325.
98. Christopher F. Fronczek, David J. You and Jeong-Yeol Yoon\*, "Single-Pipetting Microfluidic Assay Device for Rapid Detection of Salmonella from Poultry Package," *Biosensors and Bioelectronics*, **2013**, 40(1): 342-349.
99. David J. You, Tu San Park and Jeong-Yeol Yoon\*, "Cell-Phone-Based Measurement of TSH Using Mie Scatter Optimized Lateral Flow Assays," *Biosensors and Bioelectronics*, **2013**, 40(1): 180-185.
100. Scott V. Angus, Hyuck-Jin Kwon and Jeong-Yeol Yoon\*, "Field-Deployable and Near-Real-Time Optical Microfluidic Biosensors for Single-Oocyst-Level Detection of *Cryptosporidium parvum* from Field Water Samples," *Journal of Environmental Monitoring (presently Environmental Science: Processes & Impact)*, **2012**, 14(12): 3295-3304.

101. David J. You and Jeong-Yeol Yoon\*, "Droplet Centrifugation, Droplet DNA Extraction, and Rapid Droplet Thermocycling for Simpler and Faster PCR Assay Using Wire-Guided Manipulations," *Journal of Biological Engineering*, **2012**, 6: 15.
102. Jeong-Yeol Yoon\* and Bumsang Kim, "Lab-on-a-Chip Pathogen Sensor for Food Safety," *Sensors*, **2012**, 12(8): 10713-10741.
103. C. Christopher Stemple, Hyuck-Jin Kwon and Jeong-Yeol Yoon\*, "Rapid and Sensitive Detection of Malaria Antigen in Human Blood with Lab-on-a-Chip," *IEEE Sensors Journal*, **2012**, 12(9): 2735-2736.
104. Jeong-Yeol Yoon\*, "Who We Are & What We Can Do," *Resource*, **2012**, 19(3): 19-21.
105. Jae-Young Song, Chang-Hee Lee, Eun-Jin Choi, Keesung Kim and Jeong-Yeol Yoon\*, "Sensitive Mie Scattering Immunoagglutination Assay of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) from Lung Tissue Samples in a Microfluidic Chip," *Journal of Virological Methods*, **2011**, 178(1-2): 31-38.
106. David J. You, Kenneth J. Geshell and Jeong-Yeol Yoon\*, "Direct and Sensitive Detection of Foodborne Pathogens within Fresh Produce Samples Using a Field-Deployable Handheld Device," *Biosensors and Bioelectronics*, **2011**, 28(1): 399-406. *Highlighted in KUAT (PBS) TV, UANews, PhysOrg, Western Farm Press, Dong-A Ilbo, and more.*
107. Brian C. Heinze and Jeong-Yeol Yoon\*, "Nanoparticle Immunoagglutination Rayleigh Scatter Assay to Complement Microparticle Immunoagglutination Mie Scatter Assay in a Microfluidic Device," *Colloids and Surfaces B: Biointerfaces*, **2011**, 85(2): 168-173.
108. David J. You, Phat L. Tran, Hyuck-Jin Kwon, Deepa Patel and Jeong-Yeol Yoon\*, "Very Quick Reverse Transcription Polymerase Chain Reaction for Detecting 2009 H1N1 Influenza A Using Wire-Guide Droplet Manipulations," *Faraday Discussions*, **2011**, 149(1): 159-170. *Editor's pick of hot article.*
109. Hyuck-Jin Kwon, Chang-Hee Lee, Eun-Jin Choi, Jae-Young Song, Brian C. Heinze and Jeong-Yeol Yoon\*, "Optofluidic Device Monitoring and Fluid Dynamics Simulation for the Spread of Viral Pathogens in a Livestock Environment," *Journal of Environmental Monitoring (presently Environmental Science: Processes & Impact)*, **2010**, 12(11): 2138-2144. *Featured in Resource.*
110. Jeong-Yeol Yoon\* and Hyuck-Jin Kwon, "Biosensor Detection of an Airborne Mystery Disease," *Resource*, **2010**, 17(5): 5-7.
111. Brian C. Heinze, Jessica R. Gamboa, Keesung Kim, Jae-Young Song and Jeong-Yeol Yoon\*, "Microfluidic Immunosensor with Integrated Liquid Core Waveguides for Sensitive Mie Scattering Detection of Avian Influenza Antigens in a Real Biological Matrix," *Analytical and Bioanalytical Chemistry*, **2010**, 398(6): 2693-2700.
112. Phat L. Tran, Jessica R. Gamboa, David J. You and Jeong-Yeol Yoon\*, "FRET Detection of Octamer-4 on a Protein Nanoarray Made by Size-Dependent Self-Assembly," *Analytical and Bioanalytical Chemistry*, **2010**, 398(2): 759-768.
113. Hyuck-Jin Kwon, Zachary S. Dean, Scott V. Angus and Jeong-Yeol Yoon\*, "Lab-on-a-chip for Field *Escherichia coli* Assays: Long-term Stability of Reagents and Automatic Sampling System," *JALA – Journal of Laboratory Automation (presently SLAS Technology)*, **2010**, 15(3): 216-223.
114. Tremaine B. Powell, Phat L. Tran, Keesung Kim and Jeong-Yeol Yoon\*, "Size-Dependent Self-Assembly of Submicron/Nano Beads-Protein Conjugates for Construction of a Protein Nanoarray," *Materials Science and Engineering C*, **2009**, 29(8): 2459-2463.
115. Jin-Hee Han<sup>+</sup>, Hyuck-Jin Kwon<sup>+</sup>, Jeong-Yeol Yoon\*, Keesung Kim, Sang-Woon Nam and Jung Eek Son, "Analysis of the Thermal Environment in a Mushroom House Using Sensible Heat Balance and 3-D Computational Fluid Dynamics," *Biosystems Engineering*, **2009**, 104(3): 417-424. (\* equal contribution)
116. Jeong-Yeol Yoon\* and Mark R. Riley, "Grand Challenges for Biological Engineering," *Journal of Biological Engineering*, **2009**, 3: 16.
117. Jeong-Yeol Yoon\*, Jin-Hee Han, Christopher Y. Choi, Melissa Bui and Ryan G. Sinclair, "Real-Time Detection of *Escherichia coli* in Water Pipe Using a Microfluidic Device with One-Step Latex Immunoagglutination Assay," *Transactions of the ASABE*, **2009**, 52(3): 1031-1039.
118. Jin-Hee Han and Jeong-Yeol Yoon\*, "Reusable, Polyethylene Glycol-Structured Microfluidic Channel for Particle Immunoassays," *Journal of Biological Engineering*, **2009**, 3: 6.
119. Brian C. Heinze, Jae-Young Song, Chang-Hee Lee, Anbar Najam and Jeong-Yeol Yoon\*, "Microfluidic Immunosensor for Rapid and Sensitive Detection of Bovine Viral Diarrhea Virus," *Sensors and Actuators B: Chemical*, **2009**, 138(2): 491-496.

120. Jeong-Yeol Yoon\*, "Detection of Avian Influenza Type A H3N2 Virus Antigens in Microchannel and Droplet Microfluidics," *Biological Engineering (presently Biological Engineering Transactions)*, **2008**, 1(4): 323-333.
121. Jeong-Yeol Yoon\* and David J. You, "Backscattering Particle Immunoassays in Wire-Guide Droplet Manipulations," *Journal of Biological Engineering*, **2008**, 2: 15. *Highly Accessed*.
122. Keesung Kim, Jeong-Yeol Yoon\*, Hyuck-Jin Kwon, Jin-Hee Han, Jung Eek Son, Sang-Woon Nam, Gene A. Giacomelli and In-Bok Lee, "3-D CFD Analysis of Relative Humidity Distribution in Greenhouse with Fog Cooling System and Refrigerative Dehumidifiers," *Biosystems Engineering*, **2008**, 100(2): 245-255.
123. Jin-Hee Han, Brian C. Heinze and Jeong-Yeol Yoon\*, "Single Cell Level Detection of *Escherichia coli* in Microfluidic Device," *Biosensors and Bioelectronics*, **2008**, 23(8): 1303-1306.
124. Jeong-Yeol Yoon\*, "Latex Immunoagglutination Assay in Lab-on-a-Chip," *Biological Engineering (presently Biological Engineering Transactions)*, **2008**, 1(1): 79-94.
125. Lonnie J. Lucas, Jennine N. Chesler and Jeong-Yeol Yoon\*, "Lab-on-a-Chip Immunoassay for Multiple Antibodies Using Microsphere Light Scattering and Quantum Dot Emission," *Biosensors and Bioelectronics*, **2007**, 23(5): 675-681.
126. Keesung Kim, Gene A. Giacomelli, Jeong-Yeol Yoon, Sadanori Sase\*, Jung-Eek Son, Sang-Woon Nam and In-Bok Lee, "CFD Modeling to Improve the Design of a Fog System for Cooling Greenhouses," *JARQ – Japan Agricultural Research Quarterly*, **2007**, 41(4): 283-290.
127. Lonnie J. Lucas, Jin-Hee Han, Jennine Chesler and Jeong-Yeol Yoon\*, "Latex Immunoagglutination for a Vasculitis Marker in a Microfluidic Device Using Static Light Scattering Detection," *Biosensors and Bioelectronics*, **2007**, 22(9-10): 2216-2222.
128. Jin-Hee Han, Kye-Seong Kim and Jeong-Yeol Yoon\*, "The Enhanced Diffusional Mixing for Latex Immunoagglutination Assay in a Microfluidic Device," *Analytica Chimica Acta*, **2007**, 584(2): 252-259.
129. Lonnie J. Lucas, Jin-Hee Han and Jeong-Yeol Yoon\*, "Using Highly Carboxylated Microspheres to Simplify Immunoassays and Enhance Diffusional Mixing in Microfluidic Devices," *Colloids and Surfaces B: Biointerfaces*, **2006**, 49(2): 106-111.
130. Tremaine Powell and Jeong-Yeol Yoon\*, "Fluorescent Biorecognition of Gold Nanoparticle – IgG Conjugates Self-Assembled on E-Beam Patterns," *Biotechnology Progress*, **2006**, 22(1): 106-110. *Most accessed article in 2006*.
131. Jeong-Yeol Yoon, Robin L. Garrell\*, Sung-Wook Choi, Jung-Hyun Kim and Woo-Sik Kim, "Using a Stirred Cell to Evaluate Structural Changes in Proteins Adsorbed on Particles," *AIChE Journal*, **2005**, 51(3): 1048-1052.
132. Jeong-Yeol Yoon and Robin L. Garrell\*, "Preventing Biomolecular Adsorption in Electrowetting-Based Biofluidic Chips," *Analytical Chemistry*, **2003**, 75(19): 5097-5102.
133. Jiaying Huang, Veronica M. Egan, Hailan Guo, Jeong-Yeol Yoon, Alejandro L. Briseno, Robin L. Garrell, Charles M. Knobler, Feimeng Zhou and Richard B. Kaner\*, "Enantioselective Discrimination of D- and L-Phenylalanine by Chiral Polyaniline Thin Films," *Advanced Materials*, **2003**, 15(14): 1158-1161.
134. Sung-Wook Choi, Jung-Min Park, Yongsu Chang, Jeong-Yeol Yoon, Seungjoo Haam, Jung-Hyun Kim\* and Woo-Sik Kim, "Effect of Electrostatic Repulsive Force on the Permeate Flux and Flux Modeling in the Microfiltration of Negatively Charged Microspheres," *Separation and Purification Technology*, **2003**, 30(1): 69-77.
135. Jeong-Yeol Yoon, Kyung-Hee Kim, Sung-Wook Choi, Jung-Hyun Kim\* and Woo-Sik Kim, "Effects of Surface Characteristics on Non-Specific Adsorption in Latex Immunoagglutination Antibody Assay," *Colloids and Surfaces B: Biointerfaces*, **2003**, 27(1): 3-9.
136. Sung-Wook Choi, Jeong-Yeol Yoon, Seung-Joo Haam, Joon-Ki Jung, Jung-Hyun Kim\* and Woo-Sik Kim, "Modeling of the Permeate Flux during Microfiltration of BSA-Adsorbed Microsphere in Stirred Cell," *Journal of Colloid and Interface Science*, **2000**, 228(2): 270-278.
137. Sung-Wook Choi, Jeong-Yeol Yoon, Seung-Joo Haam, Joon-Ki Jung and Woo-Sik Kim\*, "Study on the Permeate Flux in the Filtration of BSA-Adsorbed Microsphere Using Stirred Cell," *Journal of the Korean Institute of Chemical Engineers*, **2000**, 38(1): 26-31. (in Korean)
138. Jeong-Yeol Yoon, Jung-Hyun Kim\* and Woo-Sik Kim, "The Relationship of Interaction Forces in the Protein Adsorption onto Polymeric Microspheres," *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **1999**, 153(1-3): 413-419.

139. Jung Hun Lee, Jeong-Yeol Yoon and Woo-Sik Kim\*, "Continuous Separation of Serum Proteins Using a Stirred Cell Charged with Carboxylated and Sulfonated Microspheres," *Biomedical Chromatography*, **1998**, 12(6): 330-334.
140. Jeong-Yeol Yoon, Jung-Hyun Kim\* and Woo-Sik Kim, "Interpretation of Protein Adsorption Phenomena onto Functional Microspheres," *Colloids and Surfaces B: Biointerfaces*, **1998**, 12(1): 15-22.
141. Jeong-Kwi Seo, Jeong-Yeol Yoon, Joon Taek Oh and Woo-Sik Kim\*, "Optimum Growth Conditions and pH Control Solution for PHB Biosynthesis in *A. eutrophus*," *Journal of Industrial and Engineering Chemistry*, **1998**, 4(3): 215-220.
142. Jeong-Yeol Yoon, Jung Hun Lee, Jung-Hyun Kim\* and Woo-Sik Kim, "Separation of Serum Proteins with Uncoupled Microsphere Particles in a Stirred Cell," *Colloids and Surfaces B: Biointerfaces*, **1998**, 10(6): 365-377.
143. Geun-Do Cho, Jeong-Yeol Yoon, Joon Taek Oh and Woo-Sik Kim\*, "Study on the Biosynthesis of PHB with *Alcaligenes latus*," *Journal of the Korean Institute of Chemical Engineers*, **1997**, 35(3): 412-418. (in Korean)
144. Jeong-Yeol Yoon, Ham-Yong Park, Jung-Hyun Kim\* and Woo-Sik Kim, "Adsorption of BSA on Highly Carboxylated Microspheres - Quantitative Effects of Surface Functional Groups and Interaction Forces," *Journal of Colloid and Interface Science*, **1996**, 177(2): 613-620.

### **Book Chapters**

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1. Christopher F. Fronczek and Jeong-Yeol Yoon\*, "Chapter 13 - Detection of Foodborne Pathogens Using Biosensors," in *Antimicrobial Food Packaging, Second Edition*, Editor: Jorge Barros-Velazquez, Academic Press (Elsevier): London/San Diego/Cambridge, **2025**, pp.209-223.
2. Jeong-Yeol Yoon\*, "Chapter 10 - ML-Assisted Biosensors Utilizing a Set of Biological Polymers," in *Machine Learning and Artificial Intelligence in Chemical and Biological Sensing*, Editors: Jeong-Yeol Yoon and Chenxu Yu, Elsevier: Amsterdam/London/Cambridge, **2024**, pp.259-274.
3. Chenxu Yu\* and Jeong-Yeol Yoon\*, "Chapter 4 - ML-Assisted E-Nose and Gas Sensors," in *Machine Learning and Artificial Intelligence in Chemical and Biological Sensing*, Editors: Jeong-Yeol Yoon and Chenxu Yu, Elsevier: Amsterdam/London/Cambridge, **2024**, pp.83-112.
4. Jeong-Yeol Yoon\*, "Chapter 3 - Use of ML/AI in Chemical Sensors and Biosensors," in *Machine Learning and Artificial Intelligence in Chemical and Biological Sensing*, Editors: Jeong-Yeol Yoon and Chenxu Yu, Elsevier: Amsterdam/London/Cambridge, **2024**, pp.71-81.
5. Yan Liang and Jeong-Yeol Yoon\*, "Chapter 2 - Fundamentals of Machine Learning," in *Machine Learning and Artificial Intelligence in Chemical and Biological Sensing*, Editors: Jeong-Yeol Yoon and Chenxu Yu, Elsevier: Amsterdam/London/Cambridge, **2024**, pp.23-70.
6. Yan Liang and Jeong-Yeol Yoon\*, "Sensors for Blood Brain Barrier on a Chip," *Vitamins and Hormones*, **2024**, 126, 219-240.
7. Kattika Kaarj and Jeong-Yeol Yoon\*, "Loop-Mediated Isothermal Amplification on Paper Microfluidic Chips for Highly Sensitive and Specific Zika Virus Detection Using Smartphone," in *Clinical Applications of Nucleic Acid Amplification*, Editors: Meagan B. Myers and Cynthia A. Schandl, Humana Press: New York, **2023**, pp.307-323.
8. Laurel Dieckhaus, Tu San Park and Jeong-Yeol Yoon\*, "Smartphone Based Paper Microfluidic Immunoassay of Salmonella and *E. coli*," in *Salmonella: Methods and Protocols, Third Edition*, Editor: Heide Schatten, Humana Press: New York, **2021**, pp.83-101.
9. Jeong-Yeol Yoon\*, "Chapter 3 - Basic Principles of Electrochemical Biosensing Using a Smartphone," in *Smartphone Based Medical Diagnostics*, Editor: Jeong-Yeol Yoon, Elsevier: London/San Diego/Cambridge, **2020**, pp.29-43.
10. Jeong-Yeol Yoon\*, "Chapter 2 - Basic Principles of Optical Biosensing Using a Smartphone," in *Smartphone Based Medical Diagnostics*, Editor: Jeong-Yeol Yoon, Elsevier: London/San Diego/Cambridge, **2020**, pp.11-28.
11. Jeong-Yeol Yoon\*, "Chapter 1 - Introduction," in *Smartphone Based Medical Diagnostics*, Editor: Jeong-Yeol Yoon, Elsevier: London/San Diego/Cambridge, **2020**, pp.1-9.
12. Pei-Shih Liang<sup>+</sup>, Tu San Park<sup>+</sup> and Jeong-Yeol Yoon\*, "Light Scattering Based Detection of Food Pathogens," in *Light Scattering Technology for Food Property, Quality and Safety Assessment*, Editor: Renfu Lu, CRC Press (Taylor & Francis): Boca Raton, **2016**, pp.429-444. (<sup>+</sup> equal contribution)

13. Dustin K. Harshman and Jeong-Yeol Yoon\*, "Wire-Guided Droplet Manipulation for Molecular Biology," in *Microfluidic Methods for Molecular Biology*, Editors: Chang Lu and Scott Verbridge, Springer; Switzerland, **2016**, pp.235-252.
14. Christopher F. Fronczek and Jeong-Yeol Yoon\*, "Detection of Foodborne Pathogens Using Biosensors," in *Antimicrobial Food Packaging*, Editor: Jorge Barros-Velazquez, Academic Press (Elsevier): London/San Diego/Waltham/Oxford, **2016**, pp.153-166.
15. Lonnie J. Lucas and Jeong-Yeol Yoon\*, "On-Chip Detection Using Optical Fibers," in *Encyclopedia of Microfluidics and Nanofluidics*, Editor: Dongqing Li, Springer: Heidelberg, **2008**, pp.1515-1530.
16. Jeong-Yeol Yoon\* and Robin L. Garrell, "Biomolecular Adsorption in Microfluidics," in *Encyclopedia of Microfluidics and Nanofluidics*, Editor: Dongqing Li, Springer: Heidelberg, **2008**, pp.68-76.
17. Jung-Hyun Kim\* and Jeong-Yeol Yoon, "Protein Adsorption on Polymer Particles: Some Applications," in *Encyclopedia of Surface and Colloid Science - Online Update*, Editor: Ponisseril Somasundaran, Marcel Dekker: New York, **2003**, pp.1-5.
18. Jung-Hyun Kim\* and Jeong-Yeol Yoon, "Protein Adsorption on Polymer Particles," in *Encyclopedia of Surface and Colloid Science*, Editor: Arthur Hubbard, Marcel Dekker: New York, **2002**, pp.4373-4381.

#### **Refereed Conference Proceedings**

1. Jocelyn Reynolds, Katelyn Sosnowski, Christine Carlson, Thomas D. McGuire, Will Roman, and Jeong-Yeol Yoon, "Noninvasive Smartphone Identification of Atopic Dermatitis Using Autofluorescence Imaging and Machine Learning," *2024 IEEE Healthcare Innovations and Point of Care Technologies (HI-POCT)*, **2024**, pp. 29-32. doi:10.1109/HI-POCT64255.2024.10876200
2. Reid S. Loeffler, Bofan Song, Darya Pershina, Christian Chan, Rongguang Liang, and Jeong-Yeol Yoon, "Paper-Microfluidic Platform with Cloud-Based Capillary Flow Analysis for Detection of HPV 16 DNA Towards Oropharyngeal Cancer Screening," *2024 IEEE Healthcare Innovations and Point of Care Technologies (HI-POCT)*, **2024**, pp. 61-64. doi:10.1109/HI-POCT64255.2024.10876197
3. Jeong-Yeol Yoon, Lane E. Breshears, Samantha Mata-Robles, and Kelly A. Reynolds, "Flow Rate Profile Based PFAS Detection on Smartphone- and Paper-Based Microfluidics," *2022 IEEE Research and Applications of Photonics in Defense Conference (RAPID)*, **2022**, 9911269.
4. Matthew Bills and Jeong-Yeol Yoon, "Angular Photodiode Array for the Identification of Colorectal Carcinoma by Mie Scatter," *2019 IEEE Sensors*, **2019**, 8956839.
5. Soo Chung, Lane E. Breshears, Soohee Cho, Kelly A. Reynolds and Jeong-Yeol Yoon, "Rapid and Reliable Norovirus Assay at pg/mL Level Using Smartphone-based Fluorescence Microscope and a Microfluidic Paper Analytic Device," *2017 ASABE Annual International Meeting*, **2017**, 1701234. doi:10.13031/aim.201701234
6. Katherine E. McCracken, Trinny Tat, Veronica Paz, Kelly A. Reynolds and Jeong-Yeol Yoon, "Immunoagglutinated Particle Rheology Sensing on a Microfluidic Paper-based Analytical Device for Pathogen Detection," *2017 ASABE Annual International Meeting*, **2017**, 1701190. doi:10.13031/aim.201701190
7. Robin E. Sweeney, Elizabeth Budiman and Jeong-Yeol Yoon, "Instant scanner device for identifying wound infection utilizing Mie scatter spectra," *Proceedings of SPIE*, **2017**, 10215: 102150U.
8. Scott V. Angus, Soohee Cho, Dustin K. Harshman and Jeong-Yeol Yoon, "Quantitative, Surface Heated, Droplet Polymerase Chain Reaction for Detecting Pathogens," *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)*, **2014**, pp.1452-1454.
9. Dustin K. Harshman, Roberto Reyes and Jeong-Yeol Yoon, "Rapid Molecular Diagnosis of Infectious Endocarditis: Developing  $\mu$ REx Dx," *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)*, **2014**, pp.1051-1053.
10. Ariana M. Nicolini and Jeong-Yeol Yoon, "Pro-Adhesive Extracellular Matrix Mimic for Use in Organ-on-a-Chip," *The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2014)*, **2014**, pp.760-762.
11. Tu San Park, Dustin K. Harshman, Christopher F. Fronczek and Jeong-Yeol Yoon, "Smartphone Detection of *Escherichia coli* from Wastewater Utilizing Paper Microfluidics," *The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2013)*, **2013**, pp.1347-1349.
12. Christopher F. Fronczek, Tu San Park and Jeong-Yeol Yoon, "Paper Microfluidic Extraction of Bacterial and Viral Nucleic Acid from Field and Clinical Samples towards a Direct MicroTAS Apparatus," *The 17th*

- International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2013)*, **2013**, pp.1114-1116.
13. Dustin K. Harshman, Roberto Reyes and Jeong-Yeol Yoon, "Direct Detection of Plasmid-Mediated Antibiotic Resistance in Bloodstream Infection by PCR Using Wire-Guided Droplet Manipulation (WDM)," *The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2013)*, **2013**, pp.470-472.
  14. Phat L. Tran, Jessica R. Gamboa, Katherine E. McCracken, Jeong-Yeol Yoon and Marvin J. Slepian, "Interaction with Nanoscale Topography: The Use of Nanowell-Trapped Charged Ligand-Bearing Nanoparticle Surfaces to Modulate Physiological Focal Adhesions in Endothelial Cells," *ASME 2013 2<sup>nd</sup> Global Congress on NanoEngineering for Medicine and Biology*, **2013**, NEMB2013-93345.
  15. Scott V. Angus, Hyuck-Jin Kwon and Jeong-Yeol Yoon, "Low-Level Detection of *Cryptosporidium parvum* in Field Water Using Optical Microfluidic Biosensors," *Proceedings of SPIE*, **2012**, 8229: 82290F.
  16. Hyuck-Jin Kwon, Scott V. Angus, David J. You, C. Christopher Stemple and Jeong-Yeol Yoon, "Development of a Handheld Optofluidic Immunosensor to Track the Transport and Distribution of H1N1/2009 Virus in a Mock Classroom," *The 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2011)*, **2011**, pp.1421-1423.
  17. Vasco Polyzoey, Eniko Enikov, Brian C. Heinze and Jeong-Yeol Yoon, "Magnetic Particle Enhanced Microcantilever Biosensor for Rapid and Sensitive *E. coli* detection," *IEEE/ISOT International Symposium on Optomechatronic Technologies (ISOT 2009)*, **2009**, pp.387-391.
  18. Phat L. Tran, Yee Tchao and Jeong-Yeol Yoon, "Fluorescence Resonance Energy Transfer Detection of Mouse Immunoglobulin G and Octamer-4 on Protein Nanoarray," *IEEE/ICME International Conference on Complex Medical Engineering (CME 2009)*, **2009**, 4906682.
  19. Jeong-Yeol Yoon, Brian C. Heinze, Jessica Gamboa and David J. You, "Detection of Avian Influenza Antigens in Proximity Fiber, Droplet and Optical Waveguide Microfluidics," *Proceedings of SPIE*, **2009**, 7313: 73130J.
  20. Phat L. Tran, Yee Tchao, David J. You and Jeong-Yeol Yoon, "Protein Nanoarray Made by Size-Dependent Self-Assembly for Detection of Mouse Immunoglobulin G and Octamer-4," *Proceedings of SPIE*, **2009**, 7313: 731306.
  21. Brian C. Heinze, Jae-Young Song, Jin-Hee Han and Jeong-Yeol Yoon, "Latex Immunoagglutination Assay for Bovine Viral Diarrhea Utilizing Forward Light Scattering in Microfluidic Device," *Proceedings of SPIE*, **2008**, 6886: 688605.
  22. Lonnie J. Lucas, Jennine Chesler and Jeong-Yeol Yoon, "Lab-on-a-Chip Immunoassay for Multiple Antibodies Using Microsphere Light Scattering and Quantum Dot Emission," *2007 ASAE Annual Meeting*, **2007**, 077115. doi:10.13031/2013.22880
  23. Jeong-Yeol Yoon, Jin-Hee Han, Christopher Y. Choi, Brian C. Heinze and Lonnie J. Lucas, "Microfluidic Device Monitoring of Waterborne Pathogens in Model Water Distribution Systems," *2007 ASAE Annual Meeting*, **2007**, 077114. doi:10.13031/2013.22879
  24. Jeong-Yeol Yoon, Jin-Hee Han, Brian Heinze and Lonnie J. Lucas, "Microfluidic Device Detection of Waterborne Pathogens through Static Light Scattering of Latex Immunoagglutination Using Proximity Optical Fibers," *Proceedings of SPIE*, **2007**, 6556: 65560M.
  25. Tremaine Powell and Jeong-Yeol Yoon, "Self-Assembly of Gold Nanoparticles on E-Beam Nano-Patterns towards Protein Nanoarray," *NSTI Nanotech 2005*, **2005**, 1: 351-354.
  26. Brian R. Baker, Azim N. Laiwalla, Jeong-Yeol Yoon and Robin L. Garrell, "Adhesion and Cohesion of Mussel Adhesive Protein on Glass and Gold through Protein Removal Studies," *Polymeric Materials: Science and Engineering*, **2001**, 85: 115-116.
  27. Fusayo Saeki, Jean Baum, Hyejin Moon, Jeong-Yeol Yoon, Chang-Jin Kin and Robin L. Garrell, "Electrowetting on Dielectrics (EWOD): Reducing Voltage Requirements for Microfluidics," *Polymeric Materials: Science and Engineering*, **2001**, 85: 12-13.

### **Media Coverage**

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Tech Launch Arizona, Tech Tuesday, "Jeong-Yeol Yoon works to improve detection of detrimental chemicals in drinking water," January 27, 2025.

Applied Physics Reviews (AIP), Featured Article, "A Smartphone-Based Approach for Comprehensive Soil Microbiome Profiling," Volume 11, Issue 3, September 2024. Also covered in Scilight, 2024, 321104, "Smartphone Offers On-Site Soil Microbiome Profiling."

Applied Physics Reviews (AIP), Featured Article, "A Comparison of Current Analytical Methods for Detecting Particulate Matter and Micro/Nanoplastics," Volume 11, Issue 1, March 2024. Also covered in Scilight, 2024, 091107, "Shrinking the Size and Cost of Air Pollution Detectors."

ACS ES&T Engineering, Supplementary Cover, "Smartphone-Based Microalgae Monitoring Platform Using Machine Learning," January 2024 Issue.

Biosensors and Bioelectronics (Elsevier), First Runner-Up (2nd Prize), Biosensors and Bioelectronics Award. Biosensors 2023: 33rd Anniversary World Congress on Biosensors, Keynote Presentation, "Rapid and Sensitive Detection of miRNA Via Light Scatter-Aided Emulsion-Based Isothermal Amplification Using a Custom Low-Cost Device," June 7, 2023.

SAE Media Group (United Kingdom), Honorable Mention – 2022 Create the Future Design Contest, "Smartphone-Based COVID-19 Test," November 2022.

Analytical and Bioanalytical Chemistry (Springer), Papers in Forefront, "COVID-19 Variants' Cross-Reactivity on the Paper Microfluidic Particle Counting Immunoassay," September 2022.

Analyst (Royal Society of Chemistry), HOT Articles 2022, "Smartphone-Based Autofluorescence Imaging to Detect Bacterial Species on Laboratory Surfaces," July 7, 2022.

Nature, "Smartphone Science: Apps Test and Track Infectious Diseases," May 10, 2021.

UANews, "UArizona Researchers Develop Smartphone-Based COVID-19 Test," January 2021. Also covered in 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, Newsbeez.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.

SLAS Technology (SLAS), 2021 SLAS Technology Readers Choice Award, "Biosensors for Monitoring Airborne Pathogens." January 2021.

Medical Devices & Sensors (Wiley), Front Cover, "The Future of Microbiome Analysis: Biosensor Methods for Big Data Collection and Clinical Diagnostics," October 2020.

ACS Omega, Virtual Special Issue, "Celebrating 5 Years of Open Access with ACS Omega," included as Special Online Attention article, July 2020.

CellScale, "Methods of Delivering Mechanical Stimuli to OOC," December 2019.

NSF Research News, "Using a Smartphone to Detect Norovirus," November 2019. Also covered in University of Arizona Health Sciences and, CEP Magazine (AICHe).

Chemistry - A European Journal (Wiley), Frontispiece, "Distance versus Capillary Flow Dynamics-Based Detection Methods on a Microfluidic Paper-Based Analytical Device ( $\mu$ PAD)," October 2019.

ACS News Release & Press Conference, "Smartphone-based device for detecting norovirus, the 'cruise ship' microbe," August 2019. Also covered in NPR News, UANews, KVOA (NBC) TV, Arizona Daily Star, Forbes, EurekaAlert!, BioSpace, Interlochen Public Radio, Texas Public Radio, New Hampshire Public Radio, Progressive Charlestown, News Atlas, Contagion Live, SciTechDaily, Medicine News Line, Chemistry World, DailyMail, New Scientist, PhysOrg, MedGadget, Medical Device Network, News-Medical.net, Herald Publicist, Medical News Today, Physics World, Futurity, Food Safety News, International Business Times, eHealthNews, Healthcare-in-Europe.com, Innovators Magazine, News Live, Daily Herald, Sciences et Avenir, Pourquoi Docteur, El Medico Interactivo, Arzte Zeitung, Technology.org, MEAWW, The Cleanzine, Cruise Passenger, Cruise Safely, Barfblog, MedIndia, Future Analyzing Technology, Satoshina Kamato Blog, Dong-A Ilbo, Dong-A Science, The Korea Times, News Zum, and more.

IEEE Sensors Journal (IEEE), Top 25 most downloaded IEEE Sensors Journal papers in June 2019, "Flow Rate and Raspberry Pi-based Paper Microfluidic Blood Coagulation Assay Device," July 2019.

Royal Society of Chemistry, Top 5% of highly cited in analytical portfolio RSC journals in 2018, "Recent Approaches for Optical Smartphone Sensing in Resource-Limited Settings: A Brief Review," July 2019.

Springer, Book Performance Report 2018 – 12,914 downloads – Top 25% most downloaded Springer books in 2018, "Introduction to Biosensors: From Electric Circuits to Immunosensors, Second Edition, 2016," June 2019.

Resource Magazine, "Discover Careers in Agricultural and Biological Engineering," September/October 2018.

Springer, Book Performance Report 2017 – 14,347 downloads – Top 25% most downloaded Springer books in 2017, "Introduction to Biosensors: From Electric Circuits to Immunosensors, Second Edition, 2016," April 2018.

ChemistryViews Magazine, "Direct Environmental Pathogen Monitoring," March 12<sup>th</sup>, 2018.

Chemistry – A European Journal (Wiley), Hot Paper & Inside Cover, "A Capillary Flow Dynamics-Based Sensing Modality for Direct Environmental Pathogen Monitoring," 2018.

Advanced Biosystems (Wiley), Front Cover, "Mie Scatter and Interfacial Tension Based Real-Time Quantification of Colloidal Emulsion Nucleic Acid Amplification," October 2017 Issue.

Springer, Book Performance Report 2016 – 9,645 downloads – Top 25% most downloaded Springer books in 2016, "Introduction to Biosensors: From Electric Circuits to Immunosensors, Second Edition, 2016," May 2017.

Arizona Daily Star, "UA Grad Student Hopes to Use Phone Tech for Water Tests," December 24<sup>th</sup>, 2015.

3D Perspectives, "Calling in Sick," October 14<sup>th</sup>, 2015.

KUAZ/KUAT (PBS/NPR) Radio, "UA-Developed Device Aims to Speed Infection Diagnosis," September 22<sup>nd</sup>, 2015.

Genomeweb, "Droplet Size Used as qPCR Readout in Prototype Device to Detect Heart Infections," September 11<sup>th</sup>, 2015.

BioCentury, "Drop Under Tension," September 10<sup>th</sup>, 2015.

UANews, "Device Could Speed Diagnosis of Infections," September 4<sup>th</sup>, 2015. Also covered in ScienceDaily, FARS News, AZBio, Science World Report, PhysOrg, Infection Control Today, Surgical Products, Machines Like Us, Biocompare, Business Standard, 2015 Tech, Science Newsline Medicine, Medical Design Technology, Technology Networks, BioSpace, The News On Time, Deccan Chronicle, EurekaAlert!, medGadget, and more.

The Korea Times, "Korean Scientist Developing Handheld Device for Ebola Detection," January 7<sup>th</sup>, 2015.

Genomeweb, "Arizona Researchers Developing Handheld PCR System for Ebola Detection," January 5<sup>th</sup>, 2015.

Genetic Engineering & Biotechnology News (GEN), "Immunoassays expand range of applications," December 1<sup>st</sup>, 2014.

RSC Advances Blog, "Smartphones develop a taste for red wine," November 5<sup>th</sup>, 2014.

Arizona Engineer, "Grad Students Honored for Food-Related Research," August 5<sup>th</sup>, 2014.

ASABE Superior Paper Award to Pei-Shih Liang and Jeong-Yeol Yoon, "Optofluidic Lab-on-a-chip Monitoring of Subsurface Bacterial Transport," July 14, 2014.

Arizona Engineer, "Jeong-Yeol Yoon Elected President of the Institute of Biological Engineering," April 1<sup>st</sup>, 2014.

UANews, "UA Ag and Cardiology Profs Team Up to Make Implanted Devices 'Sticky'," November 25<sup>th</sup>, 2013.

Advanced Healthcare Materials (Wiley), Back Cover, "Nanowell-Trapped Charged Ligand-Bearing Nanoparticle Surfaces - A Novel Method of Enhancing Flow-Resistant Cell Adhesion," July 2013 Issue.

ASABE Publications, "Optofluidic Lab-on-a-Chip Monitoring of Subsurface Bacterial Transport," May 30<sup>th</sup>, 2013.

Hankook Ilbo (South Korea), "Diagnose Cancer and Cardiac Diseases in 5 Minutes with a Drop of Blood," December 12<sup>th</sup>, 2012.

UANews, "Training the Next Generation of Heart Researchers," December 7<sup>th</sup>, 2012.

PCR Insider of Genomeweb, "U of Arizona Startup Developing Ultrafast Droplet PCR Method for Blood Infection, Veterinary Dx," December 6<sup>th</sup>, 2012.

UANews, "Two UA Inventions Selected as AZ Furnace Startups," November 20<sup>th</sup>, 2012.

Faraday Discussions (RSC), Editor's Pick of Hot Article, "Very Quick Reverse Transcription Polymerase Chain Reaction for Detecting 2009 H1N1 Influenza A Using Wire-Guide Droplet Manipulations," January 21<sup>st</sup>, 2011.

KUAT (PBS) TV, "Wavelengths: Genes, Germs and Greenhouses," October 25<sup>th</sup>, 2010.

KUAT (PBS) TV, "Arizona Illustrated: Lab on a Chip," October 12<sup>th</sup>, 2010.

Dong-A Ilbo (South Korea), "Single Cell Level Detection of E. coli in Lettuce," July 23<sup>rd</sup>, 2010.

UANews, "Lab on a Chip Detects Human, Agricultural Contaminants," July 19<sup>th</sup>, 2010. Also covered in PhysOrg, Topix, Zmarter, EnterPrise Post, Tipspad, World News Network, Western Farm Press, KUAZ Radio, and Informe Saúde (Brazil).

Journal of Biological Engineering (BioMed Central), Highly Accessed, "Backscattering Particle Immunoassays in Wire-Guide Droplet Manipulations," November 17, 2008.

Biotechnology Progress (Wiley), Most Accessed Article in 2006, "Fluorescent Biorecognition of Gold Nanoparticle-IgG Conjugates Self-Assembled on E-Beam Patterns," January 2006 Issue.

### **Current Laboratory Personnel**

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Visiting Scholar: Yongtae Ahn

Post-doctoral Scholar: Seungju Choi

Graduate Students: Jocelyn Reynolds, Reid Loeffler, Lexi DeFord, Junseong Kim (visiting), Ashley Mathews, Safiyah Abdessalam, Trinity Hardy (AMP), Avery Miller (AMP), Matthew Greenfield (AMP)



Undergraduate Students: Darya Pershina, Aryan Pandey, Christian Chan, Boston McGarrahan, Ethan Lin, Janna Said, Griffen Dresbach-Hill, Kenna Harrington, Victoria Sciarrotta, Lucas Canty, Ella Westhora, Yewon Cha (visiting)

### **Past Post-Docs and Graduate Students**

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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 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., Research Scientist at Guild BioSciences, division of Guild Associates  
 Dustin K. Harshman, Ph.D., Senior Manager at Roche  
 Tigran Nahapetian, M.S., Staff Systems Engineer at BD  
 Tu San Park, Ph.D., Assistant Professor at Kyungpook National University  
 Ariana M. Nicolini, Ph.D., Research Bioengineer at Air Force Research Laboratory  
 Vina Nguyen, M.S., Perfusionist at Stanford University Medical Center  
 Soohee Cho, Ph.D., Global Product 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 Aloudior, M.S., Perfusionist at Cedars-Sinai Medical Center  
 Soo Chung, Ph.D., Assistant Professor (tenure-track) at Seoul National University  
 Tiffany-Heather Ulep, Ph.D., 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, M.S., Ph.D. Student at Georgia Institute of Technology  
 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., Senior Research Associate at Roche  
 Tyler Hertenstein, M.S., Senior Research Assistant at Roche  
 Cassidy Mannier, M.S., Associate Practice Development Manager at NeuroStar  
 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., Laboratory Technician, Ceria Therapeutics  
 Yan Liang, Ph.D., Post-doctoral Fellow at Mayo Clinic (Rochester)  
 Bailey C. Buchanan, Ph.D., Patent Examiner, United States Patent and Trademark Office (USPTO)  
 Allison Eby, M.S., Perfusionist, University of Miami Hospital  
 Christine Carlson, M.S., TBD  
 Dylan McGuire, M.S., Manufacturing Engineer, Stryker  
 Chloe Thomas, M.S., Engineer, Dragoon Technology  
 Yisha Tang, Ph.D., Senior Algorithm Engineer, Roche

### **Past Visiting Scholars**

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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  
Hamyeong 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)