

Xiaojun Xian, Ph.D.**Associate Research Professor**

Center for Bioelectronics and Biosensors, The Biodesign Institute

Arizona State University, Tempe, AZ, 85287-5801

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Highlights

- Expertise and research interest on bio/chemical sensors, wearable medical devices, and applications in data science.
- 42 published journal papers, 4 issued patents and 2 provisional patents, 2 book chapters with a total citation >990 times and H-Index of 15.
- Developed 3 portable/wearable medical devices with 2 of them commercialized and 1 of them get FDA 510k clearance.
- Received >\$3.5 million external funding as the PI, and >\$2.3 million as Co-PI from federal funding agencies.
- Supervised 13 master students, 2 PhD students, and 4 Post-Docs in ASU.
- Reviewed >140 manuscripts for >30 prestigious journals and reviewed >90 proposals for multiple NIH research panels.
- Member of *ACS* and *IEEE*; Topic Editor of *Chemosensors*; Topic Editor of *Biosensors*, and Editorial Board Member of the *Austin Journal of Biosensors & Bioelectronics*.

EDUCATION

- Ph. D. in Physical Chemistry (Nano-Chemistry) (July 2009)
College of Chemistry and Molecular Engineering, Peking University, Beijing, China,
Research field: Nanomaterials, Nanofabrication, Nanodevices
- B. S. in Physical Chemistry (June 2004)
College of Chemistry and Molecular Engineering, Peking University, Beijing, China
Research field: Molecular Electronics

POSITIONS

- May 2020 – Present Associate Research Professor, The Biodesign Institute, Arizona State University, Tempe, Arizona, USA
- Apr 2020 – Present VP of Product & Production, TF Health Co., Tempe, Arizona, USA
- Jan 2017 – Apr 2020 Research Scientist, The Biodesign Institute, Arizona State University, Tempe, Arizona, USA
- Jan 2011 – Mar 2020 VP of Production, TF Health Co., Tempe, Arizona, USA
- Feb 2014 – Dec 2016 Associate Research Scientist, The Biodesign Institute, Arizona State University, Tempe, Arizona, USA
- Nov 2010 – Feb 2014 Assistant Research Scientist, The Biodesign Institute, Arizona State University, Tempe, Arizona, USA
- Nov 2009 – Nov 2010 Postdoc Research Associate, The Biodesign Institute, Arizona State University, Tempe, Arizona, USA
- Sep 2004 – Jul 2009 Research Associate, College of Chemistry and Molecular Engineering,

- Jun 2003 – Jun 2004 Peking University, Beijing, China
Research Assistant, College of Chemistry and Molecular Engineering,
Peking University, Beijing, China

RESEARCH INTEREST

Biosensors, Chemical Sensors, Wearable Healthcare Devices, Medical Device Design, Mobile Health, Data Science, Advanced Sensing Materials

RESEARCH SKILLS

Hardware & Software Integration, Sensor Design, Chemical Sensors, Biosensors, Environmental Sensors, Flexible Sensors, Nanomaterials, Nanofabrication, Nanodevices, Nanosensors, Analytical Chemistry, Physical Chemistry

PUBLICATIONS

(Note: total citation > 990; h-index=15; “*” means corresponding author; Google Scholar: <https://scholar.google.com/citations?user=UGid1gEAAA&hl=en&oi=ao>)

1. Liying Jiao, Xiaojun Xian, Ben Fan, Zhongyun Wu, Jin Zhang, Zhongfan Liu. Fabrication of Carbon Nanotube Diode with Atomic Force Microscopy Manipulation, *Journal of Physical Chemistry C*, 112, 7544 (2008)
2. Liying Jiao, Xiaojun Xian, Zhongfan Liu. Manipulation of Ultralong Single-Walled Carbon Nanotubes at Macroscale, *Journal of Physical Chemistry C*, 112, 9963 (2008)
3. Yongyi Zhang, Yi Zhang, Xiaojun Xian, Jin Zhang, Zhongfan Liu. Sorting out Semiconducting Single-Walled Carbon Nanotube Arrays by Preferential Destruction of Metallic Tubes Using Xenon-Lamp Irradiation, *Journal of Physical Chemistry C*, 112, 3849 (2008)
4. Liying Jiao, Ben Fan, Xiaojun Xian, Zhongyun Wu, Jin Zhang, Zhongfan Liu. Creation of Nano-architectures with Poly (methyl methacrylate)-Mediated Nanotransfer Printing, *Journal of the American Chemical Society*, 130, 12612 (2008)
5. Hualing Zeng, Liying Jiao, Xiaojun Xian, Xincui Qin, Zhongfan Liu, Xiaodong Cui. Reflectance Spectra of Individual Single-Walled Carbon Nanotubes, *Nanotechnology*, 19, 045708 (2008)
6. Wei Zhou, Liang Ren, Feng Lin, Liying Jiao, Teng Xue, Xiaojun Xian, Zhongfan Liu. An electrical switch based on Ag-tetracyanoquinodimethane sandwiched by crossed carbon nanotube electrodes, *Applied Physics Letters*, 93, 123115 (2008)
7. Liying Jiao, Xiaojun Xian, Zhongyun Wu, Jin Zhang, Zhongfan Liu. Selective Position and Integration of Individual Single-Walled Carbon Nanotubes, *Nano Letters*, 9, 205, (2009)
8. Xiaojun Xian, Liying Jiao, Zhongyu Wu, Zhongfan Liu. Electrochemical Identification of Metallic and Semiconducting Single-Walled Carbon Nanotubes using Water Gate Effect, *Chemical Communications*, 2550-2552 (2009)
9. Xiaojun Xian, Kai Yan, Wei Zhou, Liying Jiao, Zhongyu Wu, Zhongfan Liu. Unipolar p-type Single-Walled Carbon Nanotube Field-Effect Transistors using TTF-TCNQ as the Contact Material, *Nanotechnology*, 20, 505204 (2009)
10. Xiaojun Xian, Zhongfan Liu. Axial Band Structure Engineering of Single-Walled Carbon Nanotubes, *Science in China Series B-Chemistry*, 39, 1069-1088 (2009)
11. Liang Ren, Xiaojun Xian, Kai Yan, Lei Fu, Yuwen Liu, Shengli Chen, Zhongfan Liu. A General

- Electrochemical Strategy for Synthesizing Charge-Transfer Complex Micro/Nanowires, *Advanced Functional Materials*, 20, 1209 (2010)
12. Zhongfan Liu, Liying Jiao, Yagang Yao, Xiaojun Xian, Jin Zhang. Aligned, Ultralong Single-Walled Carbon Nanotubes: From Synthesis, Sorting, to Electronic Devices, *Advanced Materials*, 22, 1 (2010)
 13. Xiaojun Xian, Liying Jiao, Teng Xue, Zhongyu Wu, Zhongfan Liu. Nanoveneers: An Electrochemical Approach to Synthesizing Conductive Layered Nanostructures, *ACS Nano*, 5, 4000-4006 (2011)
 14. Rui Wang, Amlendu Prabhakar, Rodrigo A. Iglesias, Xiaojun Xian, Xiaonan Shan, Francis Tsow, Erica S. Forzani, Nongjian Tao. A Microfluidic-Colorimetric Sensor for Continuous Monitoring of Reactive Environmental Chemicals, *IEEE Sensors Journal*, 12, 1529-1535 (2012)
 15. Amlendu Prabhakar, Rodrigo A. Iglesias, Xiaonan Shan, Xiaojun Xian, Lihua Zhang, Francis Tsow, Erica S. Forzani, Nongjian Tao. Online Sample Conditioning for Portable Breath Analyzers, *Analytical Chemistry*, 84, 7172-7178 (2012)
 16. Di Zhao, Dylan Miller, Dangdang Shao, Xiaojun Xian, Francis Tsow, Rodrigo A Iglesias, Erica S Forzani. A Personal Device for Analyzing Carbon Dioxide in Real Time and Real Breath: Experimental Investigation and Computational Simulation, *Sensors and Actuators B: Chemical*, 183, 627-635 (2013)
 17. Di Zhao, Xiaojun Xian, Mirna Terrera, Ranganath Krishnan, Dylan Miller, Devon Bridgeman, Kevin Tao, Lihua Zhang, Francis Tsow, Erica S. Forzani, Nongjian Tao. A Pocket-Sized Metabolic Analyzer for Assessment of Resting Energy Expenditure, *Clinical Nutrition*, 33, 341-347 (2014)
 18. Di Zhao, Dylan Miller, Xiaojun Xian, Francis Tsow, Erica S Forzani. A Novel Real-time Carbon Dioxide Analyzer for Health and Environmental Applications, *Sensors & Actuators: B*. 195, 171-176 (2014)
 19. Devon Bridgeman, Javier Corral, Ashley Quach, Xiaojun Xian*, Erica Forzani. Colorimetric Humidity Sensor Based on Liquid Composite Materials for the Monitoring of Food and Pharmaceuticals, *Langmuir*, 30, 10785-10791 (2014)
 20. Amlendu Prabhakar, Ashley Quach, Di Wang, Haojiong Zhang, Mirna Terrera, David Jackemeyer, Xiaojun Xian, Francis Tsow, Nongjian Tao, Erica Forzani, Breath Acetone as Biomarker for Lipid Oxidation and Early Ketone Detection, *Global Journal of Obesity, Diabetes and Metabolic Syndrome*, 1, 103 (2014)
 21. Xingcai Qin, Rui Wang, Francis Tsow, Erica Forzani, Xiaojun Xian*, Nongjian Tao, A Colorimetric Chemical Sensing Platform for Real-time Monitoring of Indoor Formaldehyde, *IEEE Sensor Journal*, 15,1545-1551 (2015)
 22. Yue Deng, Cheng Chen, Xingcai Qin, Xiaojun Xian, Terry L. Alford, Hyung W. Choi, Francis Tsow, Erica S. Forzani, Aging Effect of a Molecularly Imprinted Polymer on a Quartz Tuning Fork Sensor for Detection of Volatile Organic Compounds, *Sensors and Actuators B: Chemical*, 211, 25-32 (2015)
 23. Amlendu Prabhakar, Ashley Quach, Haojiong Zhang, Mirna Terrera, David Jackemeyer, Xiaojun Xian, Francis Tsow, Nongjian Tao, and Erica Forzani, Acetone as biomarker for ketosis buildup capability - a study in healthy individuals under combined high fat and starvation diets, *Nutrition Journal*, 14:41 (2015)
 24. Xiaojun Xian, Ashley Quach, Devon Bridgeman, Francis Tsow, Erica Forzani, Nongjian Tao, Personalized Indirect Calorimeter for Energy Expenditure (EE) Measurement, *Global Journal of Obesity, Diabetes and Metabolic Syndrome*, 2, 107 (2015)
 25. Devon Bridgeman, Francis Tsow, Xiaojun Xian, Erica Forzani, A new differential pressure flow meter for measurement of human breath flow: Simulation and experimental investigation. *AIChE J.*, 62: 956-964 (2016)
 26. Yue Deng, Cheng Chen, Xiaojun Xian, Francis Tsow, Gaurav Verma, Rob McConnell, Scott Fruin, Nongjian Tao, and Erica S. Forzani, A Novel Wireless Wearable Volatile Organic Compound (VOC)

- Monitoring Device with Disposable Sensors, *Sensors*, 16, 2060 (2016)
27. Yue Deng, Nai-Yuan Liu, Francis Tsow, Xiaojun Xian, Erica S. Forzani, Adsorption Thermodynamic Analysis of a Quartz Tuning Fork Based Sensor for Volatile Organic Compounds Detection, *ACS Sens.* 2, 1662-1668 (2017)
 28. Devon Bridgeman, Francis Tsow, Xiaojun Xian, Qinan Chang, Yongming Liu, and Erica Forzani, Thermochemical Humidity Detection in Harsh or Non-Steady Environments, *Sensors*, 17, 1196 (2017)
 29. Jingjing Yu, Xingcai Qin, Xiaojun Xian, and Nongjian Tao, Oxygen Sensing Based on the Yellowing of Newspaper, *ACS Sens.* 3, 160–166 (2018)
 30. Nai-Yuan Liu, Yue Deng, Francis Tsow, Devon Bridgeman, Xiaojun Xian, Jane J. Dean, Janet L. Wilson, Nongjian Tao, Doina Kulick, and Erica Forzani, Evaluation of a Thermal-Based Flow Meter for Assessment of Mobile Resting Metabolic Rate Measures, *Journal of Sensors*, 2018, 9186475 (2018)
 31. Xingcai Qin, Ying Zhu, Jingjing Yu, Xiaojun Xian, Chenbin Liu, Yuting Yang, and Nongjian Tao, Chemical Sensing in Real Time with Plants Using a Webcam, *Anal. Chem.* 90, 13030–13035 (2018)
 32. Yue Deng, Nai-Yuan Liu, Francis Tsow, Xiaojun Xian, Rosa Krajmalnik-Brown, Nongjian Tao, and Erica Forzani, Tracking Personal Health-Environment Interaction with Novel Mobile Sensing Devices, *Sensors*, 18, 2670 (2018)
 33. Chenwen Lin, Ying Zhu, Jingjing Yu, Xingcai Qin, Xiaojun Xian, Francis Tsow, Erica S. Forzani, Di Wang, and Nongjian Tao, Gradient-Based Colorimetric Sensors for Continuous Gas Monitoring, *Anal. Chem.*, 90, 5375–5380 (2018)
 34. Chenwen Lin, Xiaojun Xian*, Xingcai Qin, Di Wang, Francis Tsow, Erica Forzani, and Nongjian Tao, High Performance Colorimetric Carbon Monoxide Sensor for Continuous Personal Exposure Monitoring, *ACS Sens.*, 3, 327–333 (2018)
 35. Xingcai Qin, Xiaojun Xian*, Yue Deng, Di Wang, Francis Tsow, Erica Forzani, and Nongjian Tao, Micro Quartz Tuning Fork-Based PM_{2.5} Sensor for Personal Exposure Monitoring, *IEEE Sensor Journal*, 19, 2482-2489 (2019)
 36. Jingjing Yu, Xingcai Qin, Di Wang, Chenwen Lin, Xiaojun Xian, and Nongjian Tao, Light-Controlled Configurable Colorimetric Sensing Array, *Anal. Chem.*, 91, 6632–6637 (2019)
 37. Xiaojun Xian, Francis Tsow, Samita Rai, Troy Anderson, Amlendu Prabhakar, Mirna Terrera, Barbara Ainsworth, David Jackemeyer, Ashley Quach, Nongjian Tao, And Erica Forzani, Personal mobile tracking of resting and excess post-exercise oxygen consumption with a mobile indirect calorimeter, *Gazzetta Medica Italiana - Archivio per le Scienze Mediche*, 178, 868-879 (2019)
 38. Xingcai Qin, Jingjing Yu, Mengchi Jiao, Xiaonan Shan, Xiaojun Xian, Di Wang, and Nongjian Tao, Integrating Electrochemical and Colorimetric Sensors with a Webcam Readout for Multiple Gas Detection, *Anal. Chem.*, 92, 799–805 (2020)
 39. Vishal Varun Tipparaju, Xiaojun Xian*, Devon Bridgeman, Di Wang, Francis Tsow, Erica Forzani, and Nongjian Tao, Reliable Breathing Tracking with Wearable Mask Device, *IEEE Sensors Journal*, 20, 5510–5518 (2020)
 40. Mora, S. Jimena, Stewart Mann, Devon Bridgeman, Ashley Quach, Liliana Balsells, Anselmo Garcia, ML Lind Thomas, Richard Robbins, and Xiaojun Xian*, Validation of A Wearable Metabolic Tracker (Breezing Pro™) for Resting Energy Expenditure (REE) Measurement via Douglas Bag Method, *Global Journal of Obesity, Diabetes and Metabolic Syndrome*, 7, 001–008 (2020)
 41. Vishal Varun Tipparaju, Di Wang, Jingjing Yu, Fang Chen, Francis Tsow, Erica Forzani, Nongjian Tao, and Xiaojun Xian*, Respiration Pattern Recognition by Wearable Mask Device, *Biosensors and Bioelectronics*,

- 169, 112590 (2020)
42. Jingjing Yu, Di Wang, Vishal Varun Tipparaju, Francis Tsow, and **Xiaojun Xian***, Mitigation of Humidity Interference in Colorimetric Sensing of Gases, *ACS Sensors*, 10.1021/acssensors.0c01644 (2020)
 43. Di Wang, Fenni Zhang, Kyle R. Mallires, Vishal Varun Tipparaju, Jingjing Yu, Erica Forzani, Nongjian Tao, and **Xiaojun Xian***, A Chemical Sensing CMOS Imager, *Science Advances*, (Under Review) (2020)
 44. Vishal Varun Tipparaju, Kyle Mallires, Di Wang, Francis Tsow, and **Xiaojun Xian***, Mitigation of Data Packet Losses in Bluetooth Low Energy for Wearable Ecosystem, *IEEE Internet of Things Journal*, (Under Review) (2020)
 45. Jingjing Yu, Francis Tsow, Mora, S. Jimena, Vishal Varun Tipparaju, and **Xiaojun Xian***, Hydrogel-assisted Colorimetric Sensors with High Humidity Tolerance for Environmental Gases Sensing, *ACS Sensors*, (Under Review) (2020)
 46. Bhavesh Patel, Erica Forzani, Amelia Lowell, Kelly McKay, Karam Abi Karam, Adithya Shyamala Pandian, Gabriel Pyznar, **Xiaojun Xian**, Michael Serhan, Self-contained system for mitigation of contaminated aerosol sources of SARS-CoV-2, *Scientific Reports*, (Under Review) (2020)

PATENTS

1. Zhongfan Liu, Liying Jiao, **Xiaojun Xian**, Yingying Zhang, Jin Zhang. Method of Axially Modulating the Band Structure of Single-Walled Carbon Nanotube, *Chinese patent*, No. ZL 2006 1 0113212.6.
2. Zhongfan Liu, Liying Jiao, **Xiaojun Xian**, Yingying Zhang, Jin Zhang. Method of Integrating Single-Walled Carbon Nanotube Based Devices, *Chinese patent*, No. ZL 2006 1 0113214.5.
3. Erica S. Forzani, Nongjian Tao, **Xiaojun Xian**, Francis Tsow, Mouthpiece For Accurate Detection Of Exhaled Nitric Oxide, *US Patent*, US 9,931,055 B2, 2018.
4. Francis Tsow, **Xiaojun Xian**, Erica S. Forzani, Nongjian Tao, Portable Metabolic Analyzer System, *US Patent*, US 10,078,074 B2, 2018.
5. **Xiaojun Xian**, Devon Bridgeman, Francis Tsow, Erica S. Forzani, Nongjian Tao, Self-Contained Wearable Metabolic Analyzer, *International Patent*, Application Number PCT/US19/55235, 2019.
6. Erica S. Forzani, **Xiaojun Xian**, Bhavesh Patel, Kelly McKay, Device And Method For Mitigating Aerosol Release From Nebulization, *US Provisional Patent*, Application Number: 63073437, 2020.

BOOK CHAPTERS

1. **Xiaojun Xian**, "Chapter 4: Diagnostic Improvements: Treatment and care". *Wireless Computing in Medicine: From Nano to Cloud with Ethical and Legal Implications*, Edited by Mary Mehrnoosh Eshaghian-Wilner, ISBN: 9781118993590, Publisher: John Wiley & Sons, 2016.
2. Cheng Chen, Francis Tsow, **Xiaojun Xian**, Erica Forzani, Nongjian Tao, and Raymond Tsui, "A Wearable Sensing System for Assessment of Exposures to Environmental Volatile Organic Compounds", book chapter in *m-Health Technologies*, ISBN: 978-1-4939-2171-3, Publisher: Springer, 2014.

CONFERENCE PRESENTATIONS

1. "Tuning the Electronic Properties of Carbon Nanotubes by Ti-Nanotubes Interaction", *The 13th China-Japan Bilateral Symposium on Intelligent Electrophotonic Materials and Molecular Electronics*, Qingdao, China, August 19-21, 2006
2. "Modulating the Transport Properties of Single-Walled Carbon Nanotubes by Specially Designed Pt-Nanotubes Interaction", *AsiaNANO 2006*, Busan, Korea, November 1-4, 2006

3. "Identifying Semiconducting and Metallic Single-Walled Carbon Nanotubes by in situ Electropolymerization of Pyrrole", *A3 Annual Meeting & Summer School*, Beijing, China, July 26-29, **2007**
4. "Identifying Semiconducting and Metallic Single-Walled Carbon Nanotubes by Using a Control Layer in Electropolymerization of Pyrrole", *The 14th National conference on Electrochemistry*, Yangzhou, China, November 1-5, **2007**
5. "Identifying semiconducting and metallic single-walled carbon nanotubes by using a control layer in the electropolymerization of pyrrole", *Asia Nanotech Camp 2008*, Tokyo, Japan, Feb 4-21, **2008**
6. "Electrochemical Identification of Metallic and Semiconducting Single-Walled Carbon Nanotubes using Water Gate Effect", *The 26th Annual Session of Chinese Chemical Society*, Tianjin, China, July 13-16, **2008**
7. "Electrochemical Fabrication of Veneer-Like SWNTs/Conducting Polymer Composite Film and Its Application in Scotch Tape Electronics", *Nanotube 2009*, Beijing, China, June 21-26, **2009**
8. "Hybrid sensing technology for real-time and remote monitoring of volatile organic compounds", ACS National Meeting & Expo, San Diego Spring, March 24-28, **2012**

MANUSCRIPT REVIEW

Reviewed >140 manuscripts for:

- Analytical Chemistry
- ACS Applied Materials & Interfaces
- International Journal of Environmental Analytical Chemistry
- Thin Solid Films
- Angewandte Chemie International Edition
- IEEE Sensors Journal
- Journal of the American Chemical Society
- Nano Today
- Physical Chemistry Chemical Physics
- Chemical science
- Chemistry - An Asian Journal
- ChemPhysChem
- Electrochimica Acta
- Industrial & Engineering Chemistry Research
- The Journal of Physical Chemistry C
- RSC Advances
- Sensors & Actuators: B. Chemical
- Journal of Materials Chemistry B
- Sensors
- International Journal of Environmental Health Research
- Applied Sciences
- Chemosensors
- ACS Omega
- Energy & Fuels
- ACS Sensors
- Sustainability
- Electronics

- IEEE Journal of Translational Engineering in Health & Medicine
- Journal of Pharmaceutical and Biomedical Analysis
- Advanced Materials Technologies
- Computers in Biology and Medicine
- Journal of Industrial and Engineering Chemistry

GRANT PROPOSAL REVIEW

Reviewed >90 NIH grant proposals for:

- Interdisciplinary Molecular Sciences and Training (IMST) IRG, NIH
- Endocrinology, Metabolism, Nutrition and Reproductive Sciences (EMNR) IRG, NIH
- National Heart, Lung, and Blood Institute (NHLBI), NIH
- Healthcare Delivery and Methodologies (HDM) IRG, NIH
- Division of AIDS, Behavioral and Population Sciences (DABP) IRG, NIH
- Instrumentation, Environmental, and Occupational Safety (ZRG1 IMST-B(12) B), NIH
- Bioengineering Sciences and Technologies IRG (BST), NIH

PROFESSIONAL AFFILIATIONS

- Member of American Chemical Society (ACS)
- Member of Institute of Electrical and Electronics Engineers (IEEE)
- Editorial Board member of the *Austin Journal of Biosensors & Bioelectronics*
- Topic Editor of *Chemosensors*
- Topic Editor of *Biosensors*

THESIS COMMITTEE

- Di Zhao, PhD of Chemical Engineering, Arizona State University
- Dylan Miller, MS of Mechanical Engineering, Arizona State University
- Balaje Dhanram Ravichandran, MS of Mechanical Engineering, Arizona State University
- Bryan Lester, MS of Mechanical Engineering, Arizona State University
- Javier Corral Clayton, MS of Chemical Engineering, Arizona State University
- Kerry-Ann Salih, MS of Chemical Engineering, Arizona State University
- Kyle Mallires, PhD of Electrical Engineering, Arizona State University
- Shelby Liu, MS of Industrial Design, Arizona State University
- Vishal Varun Tipparaju, PhD of Electrical Engineering, Arizona State University (Chair of the Committee)

MENTORING

- Srisivapriya Ganesan, MS in Computer Science, Arizona State University
- Bryan Lester, MS in Mechanical Engineering, Arizona State University
- Balaje Dhanram Ravichandran, MS in Mechanical Engineering, Arizona State University
- Yunlong Jiang, MS in Computer Science, Arizona State University
- Linyao Li, MS in Computer Science, Arizona State University
- Rahul Gannerlla, MS in Computer Science, Arizona State University
- Vikram Srivijayan, MS in Computer Science, Arizona State University
- Balaji Sankar, MS in Computer Science, Arizona State University

- Siddartha Reddy, MS in Computer Science, Arizona State University
- Xingcai Qin, Postdoc, Chemical Engineering, Arizona State University
- Devon Bridgeman, Postdoc, Chemical Engineering, Arizona State University
- Ashley Quach, Postdoc, Chemical Engineering, Arizona State University
- Sai Nageswara Koushik, MS in Computer Engineering, Arizona State University
- Chenwen Lin, PhD in Chemistry, Arizona State University
- Vishal Varun Tipparaju, MS in Computer Science, Arizona State University
- Vishal Varun Tipparaju, PhD in Electrical Engineering, Arizona State University
- Jingjing Yu, Postdoc, Chemical Engineering, Arizona State University
- Nithin George, MS in Business Analytics, Arizona State University
- Chinmay Chandrakant Dixit, MS in Mechanical Engineering, Arizona State University

TEACHING EXPERIENCE

- Invited as guest lecturer to teach EEE598: Personal Sensors for Mobile Health Applications (ASU)
- Invited as guest lecturer to teach BDE702: Fundamentals of Biological Design (ASU)
- Invited as guest lecturer to teach EDSGN100: Engineering Design (Penn State University)
- Teaching Assistant for Physical Chemistry Lab at Peking University

GRANT SUPPORTS

- Z-Cube s.r.l., Zambon \$673,387.00 12/01/2010-01/01/2012
Title: Development of first prototype of Nitric Oxide Breath Analyzer
Major goal: The goal of this project was to develop the first prototype device for detection of the airway inflammatory biomarker, nitric oxide for diagnosis and management of asthma.
Role: Project manager
- 1R01ES020358-01 NIH \$1,055,466.00 09/16/2011-07/31/2014
Title: A wireless multi-functional sensor badge for epidemiological studies
Major goal: The goal of this project is to develop, build, and validate a truly multi-functional badge-sized device to fulfill the unmet needs for epidemiological studies. The sensor focuses on simultaneously detection of nitric dioxide, ozone, carbon monoxide, formaldehyde and particular matter.
Role: Project manager
- 1R43HL123164-01 NIH \$350,703.00 04/16/2014-04/15/2015
Title: Mobile multifunctional tool for monitoring and management of respiratory diseases
Major goal: The goal of this project is to develop, test, and validate a pocket-sized mobile multifunctional device capable of both capnography and spirometry for efficient chronic respiratory disease management.
Role: Principal Investigator
- 1R43ES025095-01 NIH \$224,902.00 12/01/2014-11/30/2015
Title: A multi-analyte device for air quality monitoring
Major goal: The goal of this project is to create an integrated device that can monitor multiple toxic

chemicals in air, including ozone, nitrogen dioxide, sulfur dioxide, and formaldehyde, for indoor and outdoor air quality monitoring, and for occupational safety and health.

Role: Principal Investigator

• 2R44HL123164-02 NIH \$490,692.00 04/16/2015-03/31/2016

Title: Mobile multifunctional tool for monitoring and management of respiratory diseases

Major goal: The goal of this project is to develop, test, and validate a pocket-sized mobile multifunctional device capable of both capnography and spirometry for efficient chronic respiratory disease management.

Role: Principal Investigator

• 1R21EB020868-01 NIH \$387,829.00 08/01/2015-07/31/2017

Title: Non-Invasive Mobile Device for Tracking Cardiovascular Functions

Major goal: The goal of this project is to develop and optimize the first wireless non-invasive mobile device for detection of cardiac output and stroke volume.

Role: Co-Investigator

• 5R44HL123164-03 NIH \$474,592.00 04/01/2016-03/31/2017

Title: Mobile multifunctional tool for monitoring and management of respiratory diseases

Major goal: The goal of this project is to develop, test, and validate a pocket-sized mobile multifunctional device capable of both capnography and spirometry for efficient chronic respiratory disease management.

Role: Principal Investigator

• 1R44ES029006-01A1 NIH \$199,688.00 07/01/2018-06/30/2019

Title: A badge-like exposure device for occupational safety and epidemiological study

Major goal: The goal of this project is to develop and validate a personal chemical exposure device using an innovative Flow-Colorimetric Sensing technology for occupational safety and environmental health research.

Role: Principal Investigator

• 5R44HL123164-04 NIH \$474,592.00 04/01/2017-03/31/2020

Title: Mobile multifunctional tool for monitoring and management of respiratory diseases

Major goal: The goal of this project is to develop, test, and validate a pocket-sized mobile multifunctional device capable of both capnography and spirometry for efficient chronic respiratory disease management.

Role: Principal Investigator

• 1U01EB021980-01 NIH \$1,955,502.00 09/30/2015-06/30/2020

Title: A Personal Exposure and Response Monitoring System for Pediatric Asthma Study

Major goal: The goal of the project is to 1) develop a button-sized sensor that can monitor indoor and outdoor exposure of a child 24 hours a day; 2) pair the button-sized personal exposure sensor with physiological signal monitors and develop seamless data communication with an Asthma

Study App; and 3) validate the entire system via a small-scale pilot study.

Role: Co-Investigator

- 4R44ES029006-02 NIH \$1,197,174.00 08/01/2019-07/31/2021

Title: A badge-like exposure device for occupational safety and epidemiological study

Major goal: The goal of this project is to develop and validate a personal chemical exposure device using an innovative Flow-Colorimetric Sensing technology for occupational safety and environmental health research.

Role: Principal Investigator

- SAIT Research Project Samsung \$150,000.00 01/01/2020-06/30/2021

Title: Gradient Based Colorimetric Array Sensor for Detection of Transdermal Biomarkers of Macronutrients Intake and Metabolic diseases

Major goal: The goal of this project is to develop and test a gradient based colorimetric array sensor for detection of transdermal biomarkers of macronutrients intake and metabolic diseases.

Role: Principal Investigator