



Jeffrey T. LaBelle

Tempe, AZ 85287-9709

JEFFREY.LABELLE@asu.edu

(480) 727-9061 phone

(480) 727-7624 fax

Experience & Education:

Arizona State University, School of Biological and Health Systems Engineering

Assistant Research Professor, Jul 2010 – Present

We are currently developing electrochemical sensors for noninvasive glucose sensing, a multiplexed sensor that will add more depth of information for a self monitoring blood glucose device, as well as continuous and single use stress sensing technologies. Other applications of the sensing technologies include small molecule, DNA, protein, and whole cell detection to address changing climate in point-of-care technologies and medicine. Mentor students from bioengineering, electrical engineering, chemical engineering, computer science engineering, as well as biology and chemistry programs at ASU. Teaching multiple sections of ASU101 – Freshman Experience in Bioengineering.

Arizona State University, Harrington Department of Bioengineering

Adjunct Faculty, Jun 2005 - Present

Mentoring BME undergraduate and graduate students in research and CAPSTONE design projects. Guest lecture for various courses ranging from BME 417, 490 CAPSTONE Design, BME300 Bioengineering Product Design, and other various biosensor and microcomputer electronics classes as well as seminars.

Arizona State University, Center for Bioelectronics and Biosensors, Biodesign Institute at ASU

Associate Research Scientist, Jul 2008-Jul 2010

Managed a biosensors lab group of 18 (undergraduate and graduate student) chemists, computer science, electrical, and biomedical engineers working on various biosensing projects that included: the development of advanced electrochemical impedance spectroscopy techniques, sensors, and instrumentation; and non-invasive sensing for glucose and other stress biomarkers.

Arizona State University, Center for Bioelectronics and Biosensors, Biodesign Institute at ASU

Program Manager, Jul 2007-2008

Responsible for projects ranging from Bioaffinity Sensors, Environmental-Security Sensing, Nanoscale ID taggants and Nanolocomotion, and On-Body/In-Body Stress and Glucose Sensing. Other responsibilities included: research on and writing of literature and journal articles, finding funding for these projects as well as writing proposals and team management of 30+ researchers and visiting faculty as well as on site fabrication of above sensors.

**Arizona State University, Center for Glycosciences and Technology,
Biodesign Institute at ASU**

Assistant Research Scientist, Aug 2005- Jun 2007

My group's focus is on the development of label-free electrochemical impedance spectroscopy based detection of femtomolar targets in complex solutions for disease diagnosis for Multiple Sclerosis, Breast Cancer, Salmonella/Food Poisoning, Influenza, and Lectin-Sugar Interactions. Application of engineering design principles, microfabrication, and quality control are essential parts of translating a model to device to application.

Arizona State University, Harrington Department of Bioengineering

Assistant Research Scientist, Jan 2004- Jun 2005

Design and developed nanoscale-based biophotonics sensors for application in medical devices. I mentored graduate and undergraduate students in related projects from bacterial growth and protein isolation of the nanoscale photonic elements to devices utilizing them. I also aided the department in a Whitaker Award for the development of a series of Senior Capstone Design labs and Studio to house 100+ seniors and their projects.

Arizona State University, Harrington Department of Bioengineering

Postdoctoral Researcher, Jan 2002 – Jan 2004

Project: Adaptable Nanoscale Biophotonic Hybrid Devices

Research Advisor: Vincent B. Pizziconi

The work centered on adapting photosynthetic bacteria for optimal light absorbance and characterizing the device output under a variety of light intensities. Development and correlation to an optical figure of merit was the primary means of design.

Arizona State University

Ph.D. in Bioengineering, Dec 2001

Project: Nanoscale Biophotonic Hybrid Devices

Research Advisor: Vincent B. Pizziconi

Tested feasibility of designing, isolation, fabrication, and optical characterization of a biologically derived protein for use in an optical device. I worked on the development (or translation) of biological function into engineering specifications in the materials themselves as well as the devices.

Arizona State University

MS. in Bioengineering, Dec 1999

Project: Nanoscale Biophotonic Hybrid Devices

Research Advisor: Vincent B. Pizziconi

Developed the optical apparatus, standard operating procedures, and testing equipment and protocols for the feasibility assay of a bionano optical device. A custom culture incubator was also designed and built for variable control of growth parameters for the bacteria.

Western New England College

M.S. Electrical Engineering, May 1995

Project: Three Dimensional Viewing from Light Amplification and Thermo-Imaging.

Research Advisor: James V. Masi

Designed and tested software for the use to integrate thermal imaging and night vision optics for enhanced vision. The use of the amplification of night vision to enhance the depth perspective from thermal imaging for use in vascular surgery.

Western New England College

B.S. Electrical Engineering, May 1992

Project: The Design of an Electromagnetically Locking Door

Undergraduate Research Advisor: James J. Moriarty

Designed and developed a computer controlled automatic door with an electromagnetic solenoid deadbolt all controlled by a touch pad keyboard. Use of a security code sends a signal to the Emag to remove the deadbolt and then to the DC armature motor to open the door.

Professional Societies:

American Association for the Advancement of Science, Member since 1996.

American Chemical Society, Member since 2008.

Institute of Electrical and Electronics Engineers, Member since 2008.

Teaching Experience:

Instructor in ASU101 "The Freshman Experience" (Fall 2010)

Guest Lecturer in BME 112 "Engineering Perspectives on Biological Systems" (Fall 2010)

Guest Lecturer in BME 598 "Scientific Communications" (Fall 2010)

Invited Speaker Biological Design BDE 701 "Biomarker Validation Process" (Fall 2009) Invited Speaker at Center for Biomedical Engineering and Rehabilitation Science at Louisiana Tech University (Dec 11, 2009)

Co-Instructor/Guest lecturer in CME598/CHM 494 "Biosensors" (Fall 2007)

Co-Instructor in CME 591 "Seminar" (Fall 2007)

Guest lecturer in BME 300 "Bioengineering Product Design" (Spring 2007)

Guest lecturer in BME 100 "Introduction to Bioengineering" (Fall 2006)

Guest lecturer in BME 417 "Biomedical Engineering Capstone Design I" (Fall 2005, Fall 2004, Fall 2003).

Teaching Assistant for BME 490 "Biomedical Engineering Capstone Design II" (Spring 2000)

Teaching Assistant for BME 417 "Biomedical Engineering Capstone Design I" (Fall 1999)

Teaching Assistant for BME 470 "Microcomputer Applications in Bioengineering" (Fall 1997)

Teaching Assistant for BME 423 "Biomedical Instrumentation Laboratory" (Spring 1996)

Teaching Assistant for BME 435/535 "Advanced Physiology for Engineers" (Spring 1996)

Funding, Intellectual Property and Patents

CURRENT FUNDING

ASU-Mayo Innovation Announcement (Co-PI) \$23,000 – start date October 1, 2009

“Touch-based tear sensor for non-invasive blood glucose estimation.”

PENDING AWARDS

BioAccel (PI) \$150,000 – start date Dec 1, 2010

“A minimally invasive tear based glucose sensor for diabetes management”

INTELLECTUAL PROPERTY

IP Title: Method and Apparatus for Rolling Biomedical Implanted Sensors

Inventor(s): D. K. Bishop, **J.T. La Belle**, J., Burdick, A.L. Kagie, J. Wang.

IP Title: Electrochemical Monitoring of RNase Activity

Inventor(s): Wang, J., **J.T. La Belle**, Yun Xiang.

IP Title: Differential Impedance Spectroscopy Based Label-Free GlycoSensor - A Sweet Sensor

Inventor(s): Joshi, L., T. Alford, V.P. Bhavanandan, **J.T. La Belle**, J. Sweeney, J. Wang, P. Zhang

IP Title: Nanomaterial Based Detection and Monitoring of Glyco-Interactions

Inventor(s): Joshi, L., **J.T. La Belle**, J. Wang

IP Title: Touch device for surface-contact sampling and electrochemical measurements

Inventor(s): **J.T. La Belle**, D. K. Bishop

IP Title: Method for fabricating thick-film nanogap using screen printing and photolithography.

Inventor(s): **J.T. La Belle**, D. K. Bishop

IP Title: Superball-CCD Based Room Mapper.

Inventor(s): **J.T. La Belle**, J. N. Darbut, Jr.

IP Title: Culture-free Infectious Disease Detection

Inventor(s): **J.T. La Belle**, N.J. Tao, S. Wang

IP Title: Method and Device for Tuning Multiplexed Markers for Disease Assay

Inventor(s): **J.T. La Belle**, U.K. Demirok

IP Title: Integrated Diabetic Kit

Inventor(s): **J.T. La Belle**

PATENTS

Patent Number: US 7,067,293

Patent Title: Nanoengineered Biophotonic Hybrid Device

Inventor(s): **La Belle, J.T.**, V.B. Pizziconi

CIP Patent Application: Nanoengineered Biophotonic Hybrid Device - Divisional

Inventor(s): **La Belle, J.T.**, V.B.Pizziconi

USPTO Application#: **20090090410**

EP "Nanoengineered Biophotonic Hybrid Device" Application No. 03794664.7.

DIV #1 "Device with Biological Component and Method of Making to Achieve a Desired Figure of Merit" S/N 11/475,343.

DIV #2 "Device With Biological Component and Method of Making to Achieve a Desired Transfer Function" S/N 11/475,338.

DIV #3 "Method of Making Biological Components for Devices by Forced Environmental Adaptation" S/N 11/475,356.

Patent Application: 02960-20539US01

Patent Title: Integrated device for surface-contact sampling, extraction and electrochemical measurements.

Inventor(s): **La Belle, J.T.**, D.K. Bishop

Publications:

1. **Jeffrey T. La Belle**, Ugur Korcan Demirok, Dharmendra R. Patel, Curtiss B. Cook. (2011). *Development of a Novel Single Sensor Multiplexed Marker Assay*. Analyst. DOI: 10.1039/C0AN00923G.
2. Vivek Nandakumar, Daniel Bishop, Eric Alonas, **Jeffrey LaBelle**, Lokesh Joshi, Terry L. Alford. (2011). *A Low-cost Electrochemical Biosensor for Rapid Bacterial Detection*. IEEE Sensors, Vol. 11, No. 1, pgs 210-6.
3. Karel Cizek, Chad Prior, Chongdee Thammakhet, Michal Galik, Kevin Linker, Ray Tsui, Avi Cagan, John Wake, **Jeff La Belle** and Joseph Wang (2010). *Integrated Explosive Preconcentrator and Electrochemical Detection System for TNT Vapor*. Analytica Chimica Acta. 661: 117-21.
4. Daniel K. Bishop, **Jeffrey T. La Belle**, Stephen R. Vossler, Dharmendra R. Patel, and Curtiss B. Cook. (2010). *A disposable tear glucose biosensor – part 1: design and concept testing*. Journal Diabetes Science and Technology. 2:6, 299-306.
5. **Jeffrey T. La Belle**, Daniel K. Bishop, Stephen R. Vossler, Dharmendra R. Patel, and Curtiss B. Cook. (2010). *A disposable tear glucose biosensor – part 2: system integration and model validation*. Journal Diabetes Science and Technology. 2:6, 307-11.
6. **Jeffrey T. La Belle**, Miti Shah, Justin Reed, Vivek Nandakumar, T.L. Alford, James W. Wilson, Cheryl A. Nickerson, Lokesh Joshi. (2009). *Label-Free and Ultra-Low Level Detection of Salmonella enterica serovar Typhimurium Using Electrochemical Impedance Spectroscopy*. Electroanalysis. 21:20, 2267-71.
7. Kinjal Bhavsar, Aaron Fairchild, Eric Alonas, Daniel K. Bishop, **Jeffrey T. La Belle**, James Sweeney, T.L. Alford, Lokesh Joshi. (2009) *A Cytokine Immunosensor for Multiple Sclerosis Detection Based Upon Label-Free Electrochemical Impedance Spectroscopy Using Electroplated Printed Circuit Board Electrodes*. Biosensors & Bioelectronics 25(2) 506-509.
8. John Benedet, Donglai Lu, Karel Cizek, **Jeff La Belle** and Joseph Wang. (2009). *Amperometric Sensing of Hydrogen Peroxide Vapor for Security Screening*. Analytical & Bioanalytical Chemistry 395(2) 371-6.
9. Cagan, A., Wang, J., Cizek, K., Liu, D., **La Belle, J.** *HME powder detection using space sampling and electrochemical sensors*. (2009). SPIE proceedings, Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Sensing, 7304-51.
10. Jiaying Cai, Karel Cizek, Brent Long, Kenyon McAferty, Casey G. Campbell, David R. Allee, Bryan D. Vogt, **Jeff La Belle** and Joseph Wang (2009). *Flexible Thick-Film Electrochemical Sensors: Impact of Mechanical Bending and Stress on the Electrochemical Behavior*. Sens Actu. B. 137, 379-85.
11. Andrea Kagie, Daniel K. Bishop, **Jeffrey T. La Belle**, Robert Dymond, Robin Felder, Joseph Wang (2008). *Flexible Rolled Thick-Film Miniaturized Flow-*

- cell for Minimally Invasive Amperometric Sensing*. *Electroanalysis*.20, 1610-4.
12. Avi Cagan, Donglai Lu, Karel Cizek, **Jeff La Belle** and Joseph Wang. (2008). *Reliable, rapid and simple voltammetric detection of urea nitrate explosive*. *The Analyst*. 133, 585-7.
 13. Yongkang Ye, Wen Wen, Yun Xiang, Xiaodong Qi, **Jeffrey T. La Belle**, Julian J. L. Chen, Joseph Wang. (2008). *Direct Electrochemical Monitoring of RNase Activity*. *Electroanalysis*. 20, 8, 919-22.
 14. Vivek Nandakumar, **Jeffrey T. La Belle**, Justin Reed, Miti Shah, Douglas Cochran, Lokesh Joshi, T.L. Alford. (2008). *A Methodology for Rapid Detection of Salmonella typhimurium using Label-free Electrochemical Impedance Spectroscopy*. *Biosensors and Bioelectronics*. 24, 1045-8.
 15. Arati Sridharan, Jit Muthuswamy, **Jeffrey T. LaBelle**, and Vincent B. Pizziconi. (2008). *Immobilization of Functional Light Antenna Structures Derived From The Filamentous Green Bacterium Chloroflexus aurantiacus*. *Langmuir*. 24, 8078-89.
 16. Joseph Wang, Zong Dai, , Abdel-Nasser Kawde, Yun Xiang, **Jeff La Belle**, Jared Gerlach, Veer Bhavandan, Sergei Svarovsky, Lokesh Joshi. (2007). *Nanocrystal-based electrochemical biosensors of glycan-lectin interactions suitable for point-of-care use*. *Nanomedicine: Nanotechnology, Biology and Medicine*, 2(4), 314.
 17. **Jeffrey T. La Belle**, Jared Q. Gerlach, Sergei Svarovsky and Lokesh Joshi. *Rapid Label-Free Impedimetric Detection of Glycan-Lectin Interactions* (2007). *Analy Chem*. 79, 6959-64.
 18. **Jeffrey T. La Belle**, Kinjal Bhavsar, Sergei Svarovsky, Peiming Zhang, Veer Bhavanandan, James Sweeney, Terry Alford, Joseph Wang, Lokesh Joshi. (2007). *A Cytokine Immunosensor Based Upon Label-Free Electrochemical Impedance Spectroscopy*. *Biosens Bioelec* 23, 428-31.
 19. Sridharan, A., Muthuswamy, J., **LaBelle, J.**, Pizziconi. V. (2007). *Characterization of covalently immobilized chlorosomes on indium tin oxide conductive glass substrate*. *Biophys J* 331A-331A Suppl. S.
 20. Tanin Tangkuaram, Jared Q. Gerlach, Yun Xiang, Abdel-Nasser Kawde, Zong Dai, Veer P. Bhavanandan, **Jeffrey T. La Belle**, Waret Veerasai, Lokesh Joshi, Joseph Wang. (2006). *Sensitive and Rapid Electrochemical Bioassay of Glycosidase Activity*. *The Analyst*. 131, 889-891.
 21. Zong Dai, Abdel-Nasser Kawde, Yun Xiang, **Jeffrey T. La Belle**, Jared Q. Gerlach, Veer P. Bhavanandan, Lokesh. Joshi, Joseph Wang. (2006). *Nanoparticle-Based Bioelectronic Sensing of Glycan-Lectin Interactions*. *JACS*. 128, 10018-9.
 22. Joseph Wang, Yun Xiang, Zong Dai, Jared Gerlach, **Jeffrey La Belle**, Lokesh Joshi. (2006). *Nanoparticle Based Sensing of Glycan-Lectin Interactions*. *Glycobiology* 16, 11, 1155.
 23. Jared Q Gerlach, Tanin Tangkuaram, Veer P Bhavanandan, **Jeffrey T La Belle**, Joseph Wang. (2006). *Sensitive and Rapid Electrochemical Bioassay of Glycosidase Activity*. *Glycobiology* 16, 11, 1155.
 24. Gabriel A. Montaña, Ben P. Bowen, **Jeffrey T. LaBelle**, Neal W. Woodbury, Vincent B. Pizziconi, Robert E. Blankenship (2003). *Characterization of Chlorobium tepidum chlorosomes. A calculation of bacteriochlorophyll c per chlorosome and oligomer modeling*. *Biophys. J*. 85: 2560-2565.

Presentations and Posters:

Presentations and Posters

1. **Jeffrey T. La Belle**, The Iterative Design Step of a Noninvasive Glucose Sensor. MEPTEC/SMTA 2010 Conference Sept 22-23, 2010, ASU Main, Tempe AZ.
2. **Jeffrey T. La Belle**, Kenyon McAferty, Kenneth Lan, Pankti Shah, Erica Lieberman, Dharmendra Patel, Curtiss Cook. Design Improvements of a Disposable, Noninvasive Tear-Glucose Sensor, Nov 12-14, 2010, Bethesda North Marriott Hotel & Conference Center, Bethesda, MD.
3. **Jeffrey T. La Belle**, Kenyon McAferty, Kenneth Lan, Pankti Shah. The Effect of Interferents on a Noninvasive Tear-Glucose Sensor. Annual ASU-Mayo Clinic Arizona Research Symposium/ Mayo Clinic – Scottsdale Campus, October 2, 2010.
4. Aman Verma, John Wake, Kenneth Lan, Kenyon McAferty, **Jeffrey T. La Belle**, NJ Tao. Point of Care Testing for Infectious Diseases. National Academy of Engineering Phoenix Grand Challenges Summit Registration. April 8-9, 2010, Arizona Biltmore Resort, Phoenix AZ.
5. A. Cagan, J. Wang, K. Cizek, D. Lu, **J. La Belle**, “HME powder detection using space sampling and electrochemical sensors.” Proceedings of SPIE, Defense security and Sensing 2009: Defense Homeland Security, and Law Enforcement, EXPLOSIVES SENSING III, Volume 7304-51, 73041E-1 – 10.
6. **Jeffrey T. La Belle**, PhD, Daniel K. Bishop, BSE, Stephen Vossler, BSE, Dharmendra R. Patel, MD, Curtiss B. Cook, MD. “Design and Optimization of a Disposable, Noninvasive Tear-Glucose Sensor.” Ninth Annual Diabetes Technology Meeting 2009. November 5-7, Hyatt Regency San Francisco Airport, Burlingame, California. Pg A79.
7. Avi Cagan, Karel Cizek, Narayan Kovvali, Alvaro Díaz Aguilar, Erica S. Forzani, Chad Prior, Matthew Leright, Michal Galik, Francis Tsow, Kevin Linker, **Jeff La Belle**, Joseph Wang, N. J. Tao, Andreas Spanias, Larry A. Nagahara, and Ray Tsui. (2009). Portable Explosive Detection System Based on Multiple Orthogonal Detection Schemes and Data Fusion. CTTSO Explosives Detection Symp. & Workshop. Oct. 20-23, 2009, San Diego, CA
8. Aaron B. Fairchild, Ugur K. Demirok, and **Jeffrey T. La Belle** (2009). Characterization of kinetics, sensitivity and affinity of label-free electrochemical immunosensor. University of California-Merced. June 19-21, 2009
9. Aaron B. Fairchild, Kenyon McAferty, Ugur K. Demirok, and **Jeffrey T. La Belle** (2009). A Label-free, Rapid Multimarker Protein Impedance-based Immunosensor. 2009 IEEE/ICME International Conference on Complex Medical Engineering (CME2009) April 9-11, Tempe, AZ.
10. Vivek Nandakumar; **Jeffrey .T. LaBelle**; Terry .L. Alford, "Signal Processing for Rapid Bacterial Detection," Signals, Systems and Computers, 2008. ACSSC 2008. Conference Record of the Forty-Second Asilomar Conference, vol., no., pp.1979-1981, 26-29 Oct. 2008
11. **Jeffrey T La Belle**, Joseph Wang, Yun Xiang, Zong Dai, Jared Q Gerlach, Sergei Svarovsky, Lokesh Joshi. Nanoparticle-Based Sensing of Glycan-Lectin Interactions. Glycobiology 2006, Sheraton Universal Hotel, Universal City, CA, Nov 18, 2006.
12. Jared Q. Gerlach, Tanin Tangkuaram, Veer P. Bhavanandan, **Jeffrey T. La Belle**, Joseph Wang and Lokesh Joshi. Sensitive and rapid electrochemical bioassay of

- glycosidase activity. Glycobiology 2006, Sheraton Universal Hotel, Universal City, CA, Nov 18, 2006.
13. Arati Sridharan, Jit Muthuswamy, **Jeffrey La Belle**, Vincent Pizziconi. A Novel Hybrid Nanobiophotonic Device. Western Biomedical Engineering Conference (WestBEC) 2006, ASU, Tempe, Nov 10th, 2006.
 14. Joseph Wang, Zong Dai, Abdel-Nasser Kawde, Yun Xiang, **Jeffrey T. La Belle**, Jared Gerlach, Veer P. Bhavandan, Sergei Svarovsky and Lokesh Joshi. Nanocrystal-Based Electrochemical Biosensors of Glycan-Lectin Interactions Suitable for Point-of-Care Use. 62nd SouthWest Regional Meeting of the American Chemical Society. Houston, Texas - Oct 19-22, 2006.
 15. Joseph Wang, Zong Dai, Abdel-Nasser Kawde, Yun Xiang, **Jeffrey T. La Belle**, Jared Gerlach, Veer P. Bhavandan, Sergei Svarovsky and Lokesh Joshi. Nanocrystal-Based Electrochemical Biosensors of Glycan-Lectin Interactions Suitable for Point-of-Care Use. Second Annual Meeting of the American Academy of Nanomedicine, The National Academy of Sciences, 2100 C Street NW, Washington DC, Sep 9-11, 2006.
 16. Terry Alford, James Sweeney, Joseph Wang, Jitendran Muthuswamy, Kinjal Bhavsar, **Jeffrey T. La Belle**, Lokesh Joshi. Research Cluster in Integrated BioInspired Microsensors. FIFTH JAPAN-AMERICA FRONTIERS OF ENGINEERING SYMPOSIUM, November 3-5, 2005, Hitachi Global Storage Technologies Research Lab, San Jose, CA
 17. **Jeffrey T. LaBelle.**, Gabriel A. Montaño, Robert E. Blankenship, Vincent B. Pizziconi. (2002). Nanoengineered Biophotonic Hybrid Device. Abstracts Second Joint EMBS-BMES Conference 2002, Houston Texas, Pg 1652.
 18. **Jeffrey T. LaBelle.**, Gabriel A. Montaño, Robert E. Blankenship, Vincent B. Pizziconi. (2002). Nanoengineered Interface for Biophotonic Hybrid Device components. Abstracts in BioDevice Interface - Science and Technology Workshop, The American Ceramic Society, Scottsdale, AZ, 2002.
 19. **Jeffrey T. LaBelle.**, Vincent B. Pizziconi, Gabriel A. Montaño, and Robert E. Blankenship. (2001). Nanoscale Biophotonic Hybrid Biosensor. Abstracts BioMEMS & Biomedical NANOTEchnology World 2001, Columbus, Ohio.
 20. Gabriel A. Montaño, Ben P. Bowen, **Jeffrey T. LaBelle**, Neal W. Woodbury, Vincent B. Pizziconi, Robert E. Blankenship. (2001) Determination of the number of bacteriochlorophyll molecules per chlorosome light-harvesting complex in Chlorobium tepidum. PS 2001 Proceedings: 12th International Congress of Photosynthesis, CSIRO Publishing, Collingwood, Victoria, Australia.

Mentoring and Honors Students

Graduate Student Co-Mentoring

Graduated recently

1. Vivek Nandakumar (MS-EE, Dec 2007) Techniques for Rapid Pathogen Detection
2. Donald Alex Perry (MS- HDBE, Jun 2007)
3. Andrea Kagie (MS-CME, Dec 2007) *Development of on-body/in-body biosensors for detecting physiological markers*
4. Kinjal Bhavsar (MS- HDBE, Jun 2008) *A Label-free Cytokine Immunosensor for Detection of Multiple sclerosis using Electrochemical Impedance Spectroscopy*

5. Prasun Manhati (MS-EE, Aug 2008) *Improved Signal Extraction from Fluorescence Immunoassay Image Sequences*
6. Rawiwan Laocharoensuk (PhD-CHM, Dec 2008) *Synthetic Metal Nanowires: Applications Towards On-Demand Reactions and Autonomous Motions*
7. Yun Xiang (PhD-CHM, Dec 2008) *Amplified Electrochemical Bioassays based on Bioaffinity Interactions*
8. Terannie Vazquez-Alveraz (PhD-CHM, May 2009) *Highly Sensitive Nanomaterial Based Electrochemical Biosensor*
9. Balaji Seshadri (MS-EE, May 2009) *Design of a Handheld Potentiostat*
10. Korcan Ugur Demirok (PhD-CHM, May 2010) *Functional Nanostructures: Applications in Nanobarcoding, Autonomous Motion and Sensing*

Current/In progress

1. Aaron Fairchild (PhD-SBHSE, 2011)
2. Aman Verma (MS-SBHSE, 2011)

Honors Undergraduate Students

1. Kenyon McAferty, *Cutting Edge Blood Separations for Use in Microfluidic Devices*, 2010.
2. Steve Vossler, *Development of an Electrochemical Biosensor for Trace Ionic Zinc Detection*. 2009.
3. Scott Fisk, *Approaches to Embedded System Design for Wireless Medical Device Networks*. 2009.
4. Eric Alonas, *Towards the Synthetic Nanofactory*. 2009
5. Daniel Bishop, *Applications of Electrochemical Biosensors for Personal Healthcare*. 2009
6. Justin Reed. *Design and Fabrication of a Real-Time Label-Free Salmonella Detector*. 2008
7. Sarah Kennedy, Rustan Sharer. *Staggered Array Bundles for BioMuscles*. 2006.

Previously Mentored Undergraduates

1. Howard Rogowin (Capstone). *Design of a Fiber Optic Based pH Sensor*. 1997.
2. Zak Islam (Capstone). *Fluorescence Based Fiber Optic Oxygen Sensor*. 1998.
3. Melissa-Ray Smith (Capstone). *Cell Proliferation measured by GAG content*. 1998.
4. Solitaire DeLong (Capstone). *Immunosensor for the Detection of Antibody Specific to IgE*. 1998.
5. Anuja Nair (Capstone). *Design of a Thin Film Thermoelectric Measuring Device for Flow Chambers*. 1998.
6. Jenine Vinluan (Capstone). *Design, Fabrication, and Testing of a Fluid Supported Lipid Bilayer*. 1999.
7. Eric Wenzel (Capstone). *A Novel Dental Diagnostic Device*. 1999.
8. Ronald P Jean (Capstone). *A Fractal Dimension Analyzer Device*. 1999.
9. Dan Russell (Capstone). *A Device Design to Measure Discrete Cellular Motion in Real-Time*. (Team) 1999.
10. Guy McDonnell (Capstone). *A Device Design to Measure Discrete Cellular Motion in Real-Time*. (Team) 1999.
11. Natalie Ernst (SOLUR). *Adaptive Cell Growth Chamber*. 1999.

12. Karen Chow (SOLUR). *Adaptive Cell Growth Sensing*. 1999.
13. Rahul Athalye (SOLUR-Capstone). *Investigation of Cell/Substrate Interactions: Using a Thin Flow Channel to Quantify Cellular Adhesion*. 1999.
14. Marcus Hueppe(Capstone). *Fiber Optic Based Multi-sensor Array for Photospectrometry and Real Time Culture Growth Characterization*. 1999.
15. David Levy (Capstone). *Microsystem Measuring Device for Soft Tissues*. 1999.
16. Elizabeth Nuanmaker (Capstone). *Development of a Fiber Optic Needle pH Sensor for Analyzing Tumor pH Gradients*. 2000.
17. Kyra Espinosa (Capstone). *Feasibility of a Miniature Artificial Kidney*. 2000.
18. Tom Sapienza (Capstone). *Centrifugal Micro-Bioseparation Device for Blood Analysis*. 2000.
19. Alfred Erdelji (Capstone). *A Novel Device for Delivering Liquid Pharmaceuticals to Infant Children*. 2000.
20. Andrea Hyde (Capstone). *Temperature and pH Feedback Control of a Custom Flow Cell for Laser Confocal Study of Living Cell Systems*. 2000.
21. Amy Lugo (Capstone). *Venous Location/Detection via Wavelength Absorption/Reflection Aimed Primarily at Infants*. 2001.
22. Sarah Fenney (Capstone). *Design of a Computer Controlled and Monitored Bioreactor that has Multi-Sensing Capabilities*. (Team) 2001.
23. Erica Freeman (Capstone). *Design of a Computer Controlled and Monitored Bioreactor that has Multi-Sensing Capabilities*. (Team) 2001.
24. Marta Tabaka (Capstone). *Design of a Computer Controlled and Monitored Bioreactor that has Multi-Sensing Capabilities*. (Team) 2001.
25. Deetu Simh (Capstone). *Design of a Process for Selection and Identification of DNA Aptamers*. 2001.
26. Annalee Ledesma (Capstone). *Design of a Novel Microfluidic Device for the Detection of Free Hemoglobin in Plasma*. 2001.
27. Chris Jennings (Capstone). *Nanoparticle Characterization: An Investigation into Grating Light Reflection Spectroscopy*. 2001.
28. Karen Mitts (Capstone). *A Modified Microgravity Bioreactor Design with a Self-Adjusting RPM Attachment*. 2001.
29. Milica Milovancevic (Capstone). *In Vitro Biocompatibility Complement Assay*. 2002.
30. Ekwutosi Okoroh (Capstone). *An in-vitro Diagnostic Device for Malaria Detection*. 2002.
31. Raquel Cisneros (Capstone). *Target DNA Detection using FRET*. 2002.
32. Sally Cunningham (Capstone). *Biofilm Susceptibility Test Device*. 2002.
33. Cecilia Romero (Capstone). *HA Based Biocomposite Films*. 2003.
34. Travis Arnold (Capstone). *Microfluidic Optical Detection Device*. 2004.
35. Steven Boggs (Capstone). *Polarized contact lenses*. 2004
36. Jaclyn Brown (Capstone). *Biocompatibility Assay Device*. 2004.
37. Josh Choi (FURI-Capstone). *Chromosome Spreading Device*. 2004.
38. Wardah Jamil (Capstone). *Oligonucleotide Sequencing Chip*. 2004.
39. Katie McClary (BREU-SOLUR-FURI-Capstone). *Particle Separating Microfluidic Device*. 2004.
40. Jonathon Miller (BREU-SOLUR-FURI-Capstone). *Microspectrometer for Cell Culturing*. 2004.
41. Candice Saunders (Capstone). *STD Assay Device*. (Team) 2004.
42. Nicole Simmons (Capstone). *STD Assay Device*. (Team) 2004.

43. Eaindra Tint (Capstone). *Toxicity Optical Detection Device*. 2004.
44. Masais Barksdale (SOLUR-Capstone). *A Computer Controlled Microgravity Device*. 2005.
45. Sarah Kennedy. (FURI-Capstone). *Staggered Array Bundles for BioMuscles*. 2006.
46. Rustan Sharer (FURI-Capstone). *EMG recording and Signaling for BioMuscles*. 2006.
47. Dennis Kindred (Capstone). *Glyco-Based Biosensors*. (Team) 2006
48. Ben Shepard (Capstone). *Glyco-Based Biosensors*. (Team) 2006
49. Akshat Paliwal (SOLUR-Capstone). *Glyco-Based Biosensors*. (Team) 2006
50. Fariha Tarannum (Capstone). *Glyco-Based Biosensors*. (Team) 2006
51. Le Nguyen (Capstone). *Electrochemical Biosensor for Early Breast Cancer Detection*. 2007.
52. Brenton Long (Capstone). *Improving Thick Film Screen Printed Biosensors*. 2008.
53. Justin Reed (FURI-Capstone). *Carbon pencil electrode for DNA and RNA measurements*. 2008.
54. Daniel K. Bishop (SOLUR-FURI-Capstone). *Tear Glucose Sensor*. (Team) 2009.
55. Eric Alonas (SOLUR-FURI-Capstone). *Microfluidic Separation Scheme for Complex Solutions*. 2009.
56. Stephen Vossler (FURI-Capstone). *Tear Glucose Sensor*. (Team) 2009.
57. Scott Fisk (FURI). *Handheld potentiometer for Tear Glucose Sensing*. 2009.
58. John Wake (FURI-Capstone). *BAC CAP: An Integrated Bacterial Capture and Identification* (Team) 2010.
59. Aman Verma (FURI-Capstone). *BAC CAP: An Integrated Bacterial Capture and Identification* (Team) 2010.
60. Kenyon McAferty (FURI-Capstone). In progress
61. Kenneth Lan (FURI-Capstone). In progress
62. James Choca (FURI). In progress
63. Anabel Murillo (FURI-Capstone). In progress
64. Tina Hakimi (FURI-Capstone). In progress
65. Teagan Adamson (FURI-Capstone). In progress
66. Theresa Broniak (FURI-Capstone). In progress
67. Brittney Haselwood (Capstone). In progress
68. Katherine Ruh (Capstone). In progress
69. Amit Mangukia (). In progress
70. Chris McBride (FURI). In progress
71. Zach Decke (FURI-Capstone). In progress
72. Pankti Shah (FURI-Capstone). In progress
73. Neil Saez (Capstone). In progress
74. Abbey Soulek (Capstone). In progress
75. Michelle Abou-Eid (Capstone). In progress
76. Bria James (Capstone). In progress
77. Lindsey Ryder (Capstone). In progress

Awards and Honors:

Biodesign Spartan Program Recipient 2009. One of ten research projects to be considered for commercialization through a new ASU/Biodesign Initiative called the Biodesign Impact Accelerator Program.

Recipient of a Graduate Research Support Office Grant – 1998 “Biophotonic Hybrid Devices.”

Scott Kimmelman Leadership Award, Tau Epsilon Phi Fraternity

Steven S. Santandrea Service Award, Tau Epsilon Phi Fraternity

Outstanding Pledge Award, Tau Epsilon Phi Fraternity

Alumni Service Award 1993, 1994, Tau Epsilon Phi Fraternity

Jeffrey T. LaBelle Lifetime Achievement Award (honored in name), Tau Epsilon Phi Fraternity