

MARK A. WIERZBICKI

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EDUCATION

Texas A&M University, College Station, TX

Ph.D. in Biomedical Engineering

Advisor: Dr. Duncan J. Maitland

GPA: 4.00

Expected December 2016

University of Houston, Houston, TX

Bachelor of Science in Biomedical Engineering

Minor: Nano-Engineering

GPA: 3.968

May 2012

WORK EXPERIENCE

Shape Memory Therapeutics, College Station, TX

Medical Device Production Supervisor

Manage a controlled fabrication environment for the production of preclinical neurovascular embolization coils. Responsibilities include training lab technicians, fabricating devices, designing fixtures for device manufacture, and writing and implementing work instructions and quality documentation.

December 2015 - Present

Texas A&M University, College Station, TX

Graduate Research Assistant – Advisor Dr. Duncan J. Maitland

Design, construct, and test medical device prototypes to treat patent ductus arteriosus and cerebral aneurysms utilizing shape memory polymer foams

July 2012 - Present

University of Houston, Houston, TX

Undergraduate Research Assistant – Advisor Dr. John Eberth

Designed a MATLAB script to distinguish between different particles utilizing Doppler ultrasound data, and completed a bi-axial testing device as part of a group senior design project to mechanically test various blood vessels to obtain their mechanical properties

September 2011 – July 2012

Methodist Hospital Research Institute, Houston, TX

Summer Research Assistant – Advisor Dr. Rita Serda

Performed standard cell culture tasks, imaged cells and tissues utilizing scanning electron and two photon microscopy, and performed particle uptake studies

June 2011 – August 2011

University of Houston, Houston, TX

Undergraduate Research Assistant – Advisor Dr. Paul Ruchhoeft

Utilized a commercially available craft cutter to design an inexpensive microfluidic electro kinetic pump prototype, and tested the functionality of the pump prototype by visualizing flow through the microfluidic channel

January 2011 – June 2011

Baylor College of Medicine, Houston, TX

Summer Research Assistant – Advisor Dr. Robia G. Pautler

Imaged mice in small animal MRI, processed the images using MATLAB, and performed immunohistochemistry on sectioned mouse brains

June 2010 – July 2010

SKILLS

Software

Solidworks, MATLAB, LABVIEW, FLUENT, Gambit, Microsoft Office, Grand Avenue

Applications

Laser welding, Excimer laser cutting, Polyurethane polymer synthesis, Shape memory polymer applications, Nitinol applications, Machining (conventional lathe and mill), Fiber optics, Diode laser use, Instron tensile testing, DMA, DSC, 21 CFR 820

RELEVANT COURSE WORK

Scientific Instrument Making, Medical Device Path to Market, Medical Device Design, Biophotonics, Bio Optics Lab, Computational Fluid Dynamics, Bioanalytics, Nanoscale Design and Fabrication, Engineering Statistics, Advanced Continuum Biomechanics, Circuits I, Quantitative Physiology

TEACHING EXPERIENCE

Texas A&M University, College Station, TX

Teaching Assistant – Foundations of Engineering/Introduction to Bio-Solid Mechanics

2012-2013

Attended lectures, graded exams and homework assignments, met with students during and outside of class to assist with assignments

HONORS AND AWARDS

BME Graduate Student Travel Grant Recipient

Fall 2015

Outstanding Senior in Biomedical Engineering, University of Houston

2012

Outstanding Junior in Biomedical Engineering, University of Houston

2011

Dean's List: 2008-2012

2008 - 2012

PROFESSIONAL DEVELOPMENT

Alpha Eta Mu Beta: Member

2013-Present

Tau Beta Pi: Member

2011- Present

PROVISIONAL PATENTS

Wierzbicki MA, Maitland DJ, Miller MW, Mushchenborn A, Nash LD, Szafron J, Landsman T. "Biocompatible Biomedical Occlusion Device"

Maitland DJ, Hearon K, Nash LD, **Wierzbicki MA**. "Polymer Microactuator Detachment Mechanism"

INVENTION DISCLOSURES

Maitland DJ, Hwang W, Nash LD, **Wierzbicki MA**. "Heated Catheter Endovascular Injection"

PUBLICATIONS

Wierzbicki, M.A., Bryant, J., Miller, M.W., Keller, B., Maitland, D.J., *Mechanical and in vitro Evaluation of an Experimental Canine Patent Ductus Arteriosus Occlusion Device*. Journal of the Mechanical Behavior of Biomedical Materials, 2016. 59(-): p. 156 - 167.

Boyle AJ, Landsman TL, **Wierzbicki MA**, Nash LD, Hwang W, Miller MW, Tuzun E, Hasan SM, Maitland DJ. 2015. *In vitro and in vivo* evaluation of a shape memory polymer foam-over-wire embolization device delivered in saccular aneurysm models. J Biomed Mater Res Part B 2015:00B:000-000.

Keith Hearon, **Wierzbicki MA**, Nash LD, Landsman TL, Laramy Christine, Lonnecker AT, Gibbons MC, Ur S, Cardinal KOH, Wilson TS, Wooley KL, Maitland DJ, "A Processable, Tunable Thiol-ene Crosslinked Polyurethane Shape Memory Polymer System for Biomedical Applications." *Advanced Healthcare Materials*. 2015: 1386-98.

Jennifer N. Rodriguez, Hwang W, Horn J, Landsman TL, Boyle A, **Wierzbicki MA**, Hasan SM, Follmer D, Bryant J, Small W, Maitland DJ. "Design and biocompatibility of endovascular aneurysm filling devices." *Journal of Biomedical Materials Research: Part A*. 2015: 1577-94.

Nash, L.D., **M.A. Wierzbicki**, and D.J. Maitland, *Design and Characterization of a Resistively Heated Shape Memory Polymer Micro-Release Device*. *Journal of Medical Devices-Transactions of the ASME*, 2014. **8**(2).

POSTER PRESENTATIONS (*Presenting Author)

Mark A. Wierzbicki*, Bryant J, Miller MW, Maitland DJ. "Mechanical and in vitro Evaluation of an Experimental Canine Patent Ductus Arteriosus Occlusion Device." *Design of Medical Devices*, University of Minnesota, April 13, 2016, Minneapolis, MN

Mark A. Wierzbicki*, Bryant J, Miller MW, Maitland DJ. "Intravascular Canine Patent Ductus Arteriosus Closure Device." *Society of Engineering Science*, Texas A&M University, October 2016, College Station, TX

Mark A. Wierzbicki*, Bryant J, Miller MW, Maitland DJ. "Intravascular Canine Patent Ductus Arteriosus Closure Device." *Biomaterials Day*, Rice University, June 1, 2015, Houston, TX

Mark A. Wierzbicki*, Bryant J, Miller MW, Maitland DJ. "Intravascular Canine Patent Ductus Arteriosus Closure Device." *ENG-LIFE Workshop*, Texas A&M Health Science Center, April, 24, 2015, College Station, TX

Anthony J. Boyle*, Landsman TL, **Wierzbicki MA**, Nash LD, Hwang WJ, Miller MW, Tuzun E, Hasan SM, and Maitland DJ. "Shape Memory Polymer Foam over Wire Embolization Device Delivered in Saccular Aneurysm Models." *Biointerface Workshop & Symposium*. September 2015, Scottsdale, AZ.

Mark A. Wierzbicki*, Nash LD, Maitland DJ. "Design and Characterization of a Laser Actuated Shape Memory Polymer Micro-gripper." *Biomaterials Day*, Texas A&M University, June 9, 2014, College Station, TX

Fatemeh Nooshabadi*, Malik B, **Wierzbicki MA**, Maitland DJ, Yang HJ, Cirillo JD, Maitland KC. "Excitation of Fluorescence in the Mouse Lung Using an Internal Diffusing Fiber Source and Whole-Animal Optical Imaging." *SPIE Translational Biophotonics 2014*, Rice University, May 19, 2014, Houston, TX

Landon D. Nash*, **Wierzbicki MA**, Maitland DJ. "Design and Characterization of a Resistively Heated Shape Memory Polymer Micro-Release Device." *Design of Medical Devices Conference*, University of Minnesota, April 9, 2014, Minneapolis, MN

Jason M. Szafron*, Muschenborn AD, **Wierzbicki MA**, Maitland DJ. "Design, Fabrication, and *In Vitro* Testing of an Endovascular Mechanical Thrombectomy Device." *USRG Symposium*, Texas A&M University, July 26, 2013, College Station, TX

Mark A. Wierzbicki*, Garami Z, Eberth JF. "Emboli Detection during CAS Surgery." *Undergraduate Research Day*, University of Houston, April 3, 2012, Houston, TX

PRESENTATIONS

Mark A. Wierzbicki, Bryant J, Miller MW, Keller BK, Maitland DJ. "Intravascular Canine Patent Ductus Arteriosus Closure Device." *International Mechanical Engineering Congress and Exposition*, November 13-19, 2015, Houston, TX

Mark A. Wierzbicki, Mashiatulla M, Mohamed M, Potts K, Eberth JF. "Biaxial Testing and Culturing Device: Assessment of Blood Vessel Mechanics." Senior Design Symposium, University of Houston, April 18, 2012, Houston, TX.

Mark A. Wierzbicki, Melendez B, Serda R. "*In vivo* Trafficking of Nanovaccine Loaded Dendritic Cells." 2011 TMHRI Summer Student Retreat. The Methodist Hospital Research Institute, August 12, 2011, Houston, TX

Mark A. Wierzbicki, Perez-Torres CJ, Pautler RG. "Using MRI Magnetization Transfer to Monitor Mouse Brain Activity." Summer Medical and Research Training Program Student Presentations. Baylor College of Medicine, July 27, 2010, Houston, TX