

# Daishen.Luo

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## Education

**Ph.D., Biomedical Engineering, Tulane University,** New Orleans, LA, 2013-Present

**M.S., Biomedical Engineering, Arizona State University,** Tempe, AZ, Dec, 2012

**B.S., Biomedical Engineering, University of Shanghai for Science and Technology,** Shanghai, China, 2011

## Experience

**Dept. of Biomedical Engineering, Tulane University**

**Research Assistant,** 08/2013-Present

**Advisor:** Dr. Damir Khismatullin

**Description:**

My job focused on acoustic levitation based method for perioperative monitoring of whole blood coagulation in liver transplant patients. I also develop ultrasound system for bioacoustic related experiments.

**Dept. of Biomedical Engineering, Arizona State University & Dept. of Obstetrics and Gynecology, St. Joseph Hospital**

**Research Assistant,** 11/2011-12/2012

**Advisor:** Dr. Bruce Towe, Dr. Robert Garfield

**Description:**

I worked on a project cooperated with Dr. Garfield from St. Joseph Hospital about cervical ripening. Cervical ripening is required for successful delivery and involves assorted pathways that are associated with inflammation. Various treatments are used to ripe the cervix clinically, when appropriate to induce delivery. We induced focused ultrasound stimulation on rat to ripen cervix during pregnancy.

**Dept. of Physiology, Midwestern University**

**Research Assistant (Grant Funded),** 09/2012-05/2013

**Advisor:** Dr. George Carlson

**Description:** This Laboratory Assistant in Physiology is responsible for assisting and performing experiments relating to the assessment of muscle function in translational studies examining the efficacy of various treatments for muscular dystrophy. These experiments will utilize various mouse models for Duchenne muscular dystrophy and involved techniques in animal handling and use biochemical assays to assess the expression of specific proteins in nondystrophic and dystrophic mice. This position is supported by an NIH grant.

**Datwyler Cables +Systems (Shanghai) Co., Ltd.**

**Marketing-Intern,** 07/2010-10/2010

- Co-ordination and execution of marketing events such as exhibition, conference, seminar, road show, etc.
- Understood corporate brand guideline and worked with advertisement vendors.
- Worked with marketing manager to develop promotional tools. Designed internal and external literatures.

## Research Project

### Acoustic levitation based method for perioperative monitoring of whole blood coagulation

**Funding:** American Heart Association

**Date:** 08/2013-Present

**Description:** This project is to develop an acoustic levitation based method for perioperative monitoring of whole blood coagulation in liver transplant patients. This grant involves collaboration with Dr. Joseph Buell from Tulane Abdominal Transplant Institute and Dr. Glynn Holt from Department of Mechanical Engineering at Boston University.

### Focused Ultrasound Stimulation on Rat Cervical Ripening During Pregnancy

**Funding:** St. Joseph Hospital

**Date:** 11/2011-12/2012

**Description:** Cervical ripening is required for successful delivery and involves assorted pathways that are associated with inflammation. Various treatments are used to ripe the cervix clinically, when appropriate to induce delivery. I participated in this project since winter, 2011. We found that the focused ultrasound stimulation could cause the early cervix ripening during pregnancy. The mechanism for FUS ripening remains unknown but may include activation of neural and biochemical pathways. This project is cooperated with Dr. Garfield from St. Joseph Hospital.

**Publication:**

Focused Ultrasound Waves Ripen the Rat Cervix during Pregnancy (Submitted)

### Treatment with inhibitors of the NF- $\kappa$ B pathway on Dystrophic Muscle

**Funding:** National Institutes of Health

**Date:** 09/2012-05/2013

**Description:** Dystrophy-deficient muscle exhibit substantial increases in nuclear NF- $\kappa$ B activation. This project is to evaluate the hypothesis that long term treatment with NF- $\kappa$ B inhibitors improves gastroc tension of the dystrophic (mdx) mouse. Daily treatment (30 days) of 1 month old mdx mice with inhibitor ursodeoxycholic acid (UDCA) or RAP-031 reduced costal diaphragm nuclear p65 activation. We perform gastroc tension test to evaluate muscle strength between treated and control group. A western blot technique was used to provide determination of relative expression of NF- $\kappa$ B signaling molecules in the mdx diaphragm. This project is under supervisor of Dr. Carlson in Midwestern University.

### EMG Signal Acquisition System

**Date:** 06/2010-11/2010

**Description:** The project was an aptitude artificial limb based on EMG signal and mainly consisted of signal acquisition, signal processing and mechanical drive.

I was responsible for designing acquisition circuit to detect EMG signal in signal acquisition part. The hardware circuit consisted of signal conditioning (simulation) which included pre-amplifier circuit and jamming filtering circuit, and signal acquisition whose main control chip was MSP430 and which conducted the acquisition of Channel 4 of EMG signal and AD transformation at the same time.

### EMG Signal Output System

**Date:** 11/2010-06/2011

**Description:** Made EMG Signal Acquisition System based on single-chip computers. Setting acquisition circuit, conducted circuit adjustment and digital conversion, and adjusted the connection between liquid crystals screen and single-chip computer acquisition system to convert the digital signal acquired to images displaying on LCD

## Conferences

**Society for Gynecologic Investigation**, March 20-23, 2013, Orlando, FL. (Poster Present)

### **Professional Skills**

- Good background in engineering, physiology and neuroscience.
- Good skill in ultrasound system construction
- Animal (rabbit, rats, mice) treatment, surgery procedure.
- Be familiar with biochemical assessment, like western blot.
- Be familiar with Single Chip Microcomputer, circuit design
- Proficient in application software like MatLab, Altium Designer, ProteeEE and familiar with such equipment as electric iron, oscilloscope, signal generator and controlled electric source.

### **Extracurricular Activities**

- Served as research volunteer at St. Joseph Hospital, Phoenix, AZ.
- Served as volunteer at the 2010 Shanghai World Expo.
- Served as minister of sports department ( 12/2007-05/2010)
- Organized various sports activities and competitions, and led the basketball team of our college to the third place.

### **References**

Dr. Bruce Towe

Professor of School of Biological & Health Systems Engineering, Arizona State University, Tempe, AZ

[bruce.towe@asu.edu](mailto:bruce.towe@asu.edu)

Dr. Robert Garfield

Senior Staff Scientist, Director of Division of Research of Department of Obstetrics and Gynecology, St. Joseph's Hospital and Medical Center, Phoenix, AZ

[Robert.Garfield@dignityhealth.org](mailto:Robert.Garfield@dignityhealth.org)

Dr. George Carlson

Professor, Chair of department of Physiology, Midwestern University, Glendale, AZ

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