

# Stanford

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## Robin Wilson

Ph.D. Student in Mechanical Engineering, admitted Spring 2015

### Bio

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#### BIO

I am a mechanical engineering PhD student in Prof Beth Pruitt's Microsystems Laboratory. My research interests deal with mechanics of stem cell-derived cardiomyocytes (iPSC-CMs), or heart muscle cells. In particular, I am interested in the effects of geometry and cell-cell adhesions on cell contractile function, cytoskeletal organization, and protein localization. To study questions in this area, I design and fabricate microscale devices. These devices are often made from polyacrylamide or PDMS and allow us to control single cell geometry and adhesions. They also allow for measurement of a number of parameters such as force generation, calcium cycling, and cytoskeletal structure.

Prior to my graduate studies, I completed my bachelor's degree in biomedical engineering at Case Western Reserve University. During this time I worked in a number of labs at Case Western and other universities during summer internships. I worked on projects including lipid nanobubbles as an ultrasound contrast agent and drug delivery system, an implantable nerve scaffold, and cardiomyocyte maturation in vitro.

After earning my undergraduate degree, I spent a year as a Whitaker Fellow doing research in Ralph Mueller's bone biomechanics group at ETH Zurich. There I worked with graduate students to understand how cells embedded within bones respond to high or low forces. For this project, I also developed initial prototypes for microfluidic devices to measure protein expression in single cells.

#### HONORS AND AWARDS

- NSF Graduate Research Fellowship Program, NSF (2013 - 2016)
- Stanford Graduate Fellowship, Stanford University (2013 - 2016)

#### EDUCATION AND CERTIFICATIONS

- MS, Stanford University , Mechanical Engineering (2015)
- BS, Case Western Reserve University , Biomedical Engineering (2012)

### Publications

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#### PUBLICATIONS

- **Controlling cell shape on hydrogels using lift-off protein patterning** *PLoS ONE*  
Moeller, J., Denisin, A. K., Sim, J., Wilson, R. E., Ribeiro, A. J., Pruitt, B. L.  
2018; 13 (1): e0189901
- **For whom the cells pull: Hydrogel and micropost devices for measuring traction forces.** *Methods*  
Ribeiro, A. J., Denisin, A. K., Wilson, R. E., Pruitt, B. L.

2016; 94: 51-64

● **A Novel Internal Fixator Device for Peripheral Nerve Regeneration** *TISSUE ENGINEERING PART C-METHODS*

Chuang, T., Wilson, R. E., Love, J. M., Fisher, J. P., Shah, S. B.

2013; 19 (6): 427-437

● **Formulation and Characterization of Echogenic Lipid-Pluronic Nanobubbles** *MOLECULAR PHARMACEUTICS*

Krupka, T. M., Solorio, L., Wilson, R. E., Wu, H., Azar, N., Exner, A. A.

2010; 7 (1): 49-59