

LENA BARTELL

linkedin.com/in/lenabartell

Highly-motivated, multi-disciplinary and collaborative scientist who is equally comfortable in the physics, mechanics, and bioengineering communities. Has a breadth of independent, self-directed research experience, including practical knowledge in image and data analysis as well as optical imaging. Regularly develops algorithms to analyze multi-dimensional imaging data. Keenly interested in data science, data visualization and science communication.

EDUCATION

- 2011 – 2017 **Cornell University** – Ph.D. Applied Physics, Biomedical Engineering minor, 3.90 / 4.00 (expected)
2007 – 2011 **Penn State University** – B.S. Physics, Biomedical Engineering and Mathematics minors, 3.97 / 4.00

RESEARCH

CURRENT

Mechano-biology of articular cartilage

- Designed custom mechanical test frame using 3D CAD that interfaces with fast-camera imaging
- Used microscopy to correlate tissue mechanics during trauma with cell dysfunction
- Developed custom image segmentation algorithm in MATLAB for data analysis
- Analyzed statistical significance using linear regression

Crack initiation in articular cartilage

- Modified mechanical test frame to study failure properties of soft biological tissues
- Advised undergraduate student in safety, data collection, and data analysis
- Used Python and MATLAB to map microscale strains in confocal images

4D flow behavior of thin-film glass coatings

- Managed collaboration and organized meetings with Corning Inc.
- Prepared and resented results quarterly to collaboration group
- Compiled and analyzed high-dimensional data using Python and MATLAB

PAST

X-ray dosimeters for Digital Breast Tomosynthesis – Designed, constructed, and modeled the response of a custom x-ray detector for improved radiation safety in diagnostic imaging

Eliminating noise from IceCube Neutrino Observatory data – Developed level-zero filter in C++ to eliminate noise from raw detector data

AWARDS & FELLOWSHIPS

NIH F31 Predoctoral Fellowship • NSF Graduate Research Fellowship • Cornell Presidential Life Science Fellowship • Goldwater Scholarship • American Association of Physicists in Medicine Undergraduate Fellowship • Penn State Braddock Scholarship (4 years tuition, room & board)

PUBLICATIONS

C.R. Henak, **L.R. Bartell**, L.J. Bonassar, I. Cohen. *Journal of Biomedical Engineering*. (In Press).
L.R. Bartell, L.A. Fortier, L.J. Bonassar, I. Cohen. *Journal of Biomechanics* 48, 3400-3446 (2015).
L.R. Bradley, A.C. Carton, A.D.A. Maidment. *Proceedings of SPIE* 7622, 76225L (2010).

PRESENTATIONS

Podium presentation, 2015. Orthopaedic Research Society, Las Vegas, NV.
Podium presentation, 2014. Society of Rheology, Philadelphia, PA.
Podium presentation, 2011. International Association of Physics Students, Budapest, Hungary.

OTHER EXPERIENCE

- 2015 – 2016 **Student Employee** – Cornell McGovern Center for Venture Development in the Life Sciences
2015 **Leadership Assessment for Managers Course** – Leadership exercises and self-assessment
2014 – 2015 **Advisory Board Member** – NIH Broadening Experiences for Scientific Training program at Cornell
2014 **Finding Your Scientific Voice Workshop** – Intensive presentation and public speaking workshop
2009 – 2011 **President** – Penn State University Society of Physics Students

SKILLS & EXPERTISE

TECHNIQUES

Microscopy • Data analysis • Image analysis & segmentation • Linear regression & logistic modeling • Data visualization • Science communication • Mechanical testing • Sterile dissection & culture

LANGUAGES, ETC.

MATLAB • Python • Inkscape (vector graphics) • Autodesk Inventor (3D CAD) • MS Office • LaTeX • GitHub