

YASHA SHARMA

yashas@bu.edu

EDUCATION

August 2015 (Expected) | PhD. Boston University, Biomedical Engineering

August 2013 | M.S. Boston University, Biomedical Engineering

June 2009 | B.S. University of California, San Diego, Bioengineering

RESEARCH INTERESTS

collective motion, collective cell migration, cancer, computational modeling of multicellular systems, self-propelled particle models, cancer biology, mechanotransduction, cell mechanics, collective cell mechanics, statistical mechanics, mathematical approaches to biology

Research Experience

September 2010 – Present | Graduate Student, Boston University

PI: Dr. Muhammad Zaman

- Collective cell motility in 3-dimensional matrices
- Microrheology of living cells in 3-dimensions
- Microrheology of sputum samples

July 2009 – August 2010 | Volunteer, Jaswantra Speciality Hospital, Meerut, India

PI: Dr. Malay Sharma

- Mechanics of endoscopic ultrasound

September 2008-June 2009 | University of California, San Diego

PI: Dr. Amy Sung

- Nano-mechanics of red blood cell membrane

SKILLS

Computational

- C/C++ and Java
- Matlab and Mathematica
- Linux terminal commands and cluster computing
- Parallel Computing

Experimental

- 2D and 3D cell Culture
- 2D and 3D Confocal microscopy
- Live cell imaging
- Cell tracking
- Cellular Image Analysis

Languages

- English
- Hindi

Publications

- Sharma Y, Pegoraro A, Vargas D, Lepzelter D, Weitz D, Zaman MH. *Collective motion of cellular cohorts in a 3-dimensional matrix*. (In preparation)
- Yasha Sharma and Muhammad H. Zaman. *Cell migration in Three Dimensional Matrices*. In “Cell and Matrix Mechanics”. Zimm and Kaunas Editors. Taylor and Francis. 2014.
- Schwartz, M. P. et al (2013). *A quantitative comparison of human HT-1080 fibrosarcoma cells and primary human dermal fibroblasts identifies a 3D migration mechanism with properties unique to the transformed phenotype*. PloS One, 8(12), e81689.
- Fong, E. J., Sharma, Y., Fallica, B., Tierney, D. B., Fortune, S. M., & Zaman, M. H. (2013). *Decoupling directed and passive motion in dynamic systems: particle tracking microrheology of sputum*. Annals of biomedical engineering, 41(4), 837–46.
- De Oliveira, M., Vera, C., Valdez, P., Sharma, Y., Skelton, R., & Sung, L. A. (2010). *Nanomechanics of multiple units in the erythrocyte membrane skeletal network*. Annals of biomedical engineering, 38(9), 2956–67.

Posters and Presentations

- CMBE Conference 2014 | Sharma Y. et al, *Collective motility of cellular cohorts in 3D matrices*
- Quantitative Biology and Physiology Symposium, Boston University 2014 | Sharma Y et al, *Cells flock in 3-dimensions*
- BMES Conference 2012 | Sharma Y. et al, *Cells in 3D show regimes of power law rheology*.
- BMES Conference 2012 | Fong E., Sharma Y., Zaman MH. *Particle Tracking Microrheology in Non-ideal Conditions for Characterization of Sputum Digestion*.
- GEM4 Conference 2011 | Fallica B, Sharma Y, Zaman MH. Matrix mechanics govern tumor cell growth and drug response.
- Bioengineering Day UCSD 2009 | Sharma Y., Vera C., de Oliveira M., Sung LA. The role of molecular connectivity in red cell membrane nanomechanics.
- Bioengineering Day UCSD 2009 | Sharma Y., Otsuka R., Bender G., Thai K. Genetic Engineering: Creating epitope-tagged proteins via DNA recombination.

Teaching Experience

Fall 2011 | Teaching Assistant

Thermodynamics, Boston University, under Dr. Michael Smith

Fall 2012 | Teaching Assistant

Thermodynamics, Boston University, under Dr. Mo Khalil

Spring 2013 | Engineering Component Laboratory Teaching Assistant

Kilachand Honors College: The Nature of Inquiry, Insight & Intervention, Boston University

Spring 2014 | Engineering Component Laboratory Teaching Assistant

Kilachand Honors College: The Nature of Inquiry, Insight & Intervention, Boston University