FENG LING

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PERSONAL INFO

Birth Year: 1992
Citizenship: China, People's Republic of
E-mail: FLing@usc.edu
Address: 1193 W 35 St, Los Angeles, CA 90007
Mobile: +1 (713) 666 - 2935
Webpage: http://gofling.me/

EDUCATION

2016 - **University of Southern California**, Los Angeles, CA
Ph.D. Candidate, Mechanical Engineering *(Qualifying Exam 05/09/2018)*

2010 - 2015 **The University of Texas at Austin**, Austin, TX
B.S. Pure Mathematics, December 2015
B.S. Aerospace Engineering (Astronautics), December 2015
Computational Science and Engineering Certificate Program, May 2015
Halliburton Business Foundations Summer Institute, July 2012

EMPLOYMENT

2017 - **Research Assistant**, Bio-Inspired Motion Lab at USC, PI: *Prof. Eva Kanso*
2016 **Teaching Assistant**, Engineering Thermodynamics (AME 310), *Prof. J. Domaradzki and A. Penkova*
2013 - 2015 **Research Assistant**, Center for Space Research at UT Austin, PI: *Prof. Srinivas Bettadpur*

HONOR/AWARDS

2015 **Meritorious Winner** Team Lead, COMAP Mathematical Contest In Modeling
Problem B: Searching a lost aeroplane in open water, locally organized by *Dr. Andrew Spann*
2011 **Member**, ΣΓΤ Aerospace Honor Society UT Austin Chapter
2010 **Finalist**, Intel International Science and Engineering Fair

PUBLICATIONS

2019 Ling, F., K. Katija, D. Stein, M. Shelley, J. Nawroth, and E. Kanso, Morphological Diversity of Ciliated Epithelia Correlate with Flow Function, *Nature Physics*, in preparation
Ling, F., Y. Man, and E. Kanso, Cilia Oscillations, under review
2018 Ling, F., H. Guo, and E. Kanso, Instability-driven oscillations of elastic microfilaments, *J. R. Soc. Interface 15: 20180594*.

RESEARCH EXPERIENCE

2017 - **Active Microfilaments**, supervised by *Prof. Eva Kanso*
Understanding the role of buckling instabilities and active forces on mechanics of cilia beating
Using porous media models to analyze bulk characteristics of ciliary pumps

2016 - **2D Discrete Inverse Spectral Problem**, supervised by *Prof. Etienne Vouga* and *Prof. Keenan Crane*
Reconstructed discrete 2D genus 0 surfaces using only its Laplace-Beltrami spectrum

2013 - 2015 **At Center for Space Research**, supervised by *Prof. Srinivas Bettadpur*
Parametric study on dynamical effects of different misalignment models between spacecraft accelerometer and center of mass
Coding assists for GRACE spacecraft thermal environment modeling
Analyzed correlations between GRACE accelerometer reading anomalies, thruster firing pattern, and star camera measurement deviations
Studied geographical significance of GRACE on-board SNR w.r.t. post-fit residue of gravity model

TALKS/PRESENTATIONS

2019 **SHINE USC**, Experiments on the Fantastic Strangeness of Viscosity and Elasticity
2018 **APS Division of Fluid Dynamics (DFD) Meeting**, Ciliary Pumps
APS March Meeting, Instability-driven Oscillations of Active Microfilament
2017 **APS DFD Meeting**, Dynamics of Active Microfilaments
2016 **Mathematics Undergraduate Student Talks (MUST)**, LS category and its cousins
2015 **Directed Reading Program (DRP)**, (co)fiber sequences and $\pi_3(S^2)$, mentor: *Ernest Fontes*
DRP, What is persistent homology, mentor: *Ahmad Issa*
2014 **DRP**, Čech cohomology of projective spaces, mentor: *Yuecheng Zhu*

	DRP, Classification of Du-val singularities, mentor: *Yuecheng Zhu*
2013	**DRP**, How to blow up double points in a plane & why you should do it too, mentor: *Hendrik Orem*

GRADUATE COURSEWORK

	at University of Southern California
2018	Transition to Chaos in Dynamical Systems, *Prof. Paul Newton*
	Mechanics of Locomotion in Air, Water, and on Land, *Prof. Eva Kanso*
2017	Thermodynamics and Statistical Mechanics, *Prof. Christoph Haselwandter*
	Incompressible Fluids and Turbulence, *Prof. Mitul Luhar*
2016	Fokas method (audit), *Prof. Athanassios Fokas*
	at the University of Texas at Austin
	Kac-Moody Algebras and Groups (audit), *Prof. Daniel Allcock*
	Algebraic Geometry (audit), *Prof. David Ben-Zvi*
	Riemann Surfaces (audit), *Prof. Tim Perutz*
	Moduli of Higgs Bundle (audit), *Prof. Andrew Neitzke*
2015	Algebra, *Prof. Felipe Voloch*
	K-theory as it appears in geometry, *Prof. Dan Freed*
	4-Manifold Topology (audit), *Prof. Robert Gompf*
	Rational Homotopy Theory (audit), *Dr Jonathan Campbell*
	Differential Topology, *Prof. Andrew Neitzke*
	D-modules (audit), *Dr Sam Gunningham*
	Ergodic Theory and Dynamics (audit), *Prof. Lewis Bowen*
2014	Real Analysis, *Prof. Lewis Bowen*
	Algebraic Topology, *Prof. Michael Starbird*
	Homotopy Type Theory (audit), *Prof. Andrew Blumberg*
	Complex Analysis, *Prof. Thomas Chen*
	Stochastic Detection and Estimation, *Prof. Todd Humphreys*
2013	Finite Elements Methods, *Prof. Mary Wheeler*
	GPS Signal Processing, *Prof. Todd Humphreys*

MISC. ASSOCIATIONS

2019	Judging for USC Undergraduate Symposium for Scholarly and Creative Work
2018 -	Designated pot washer for Good Karma Cafe at USC (volunteer)
2017	USC Wrigley Marine Science Institute Spring Break Program on Sustainability
2016 -	DTLA Weightlifting at Trojan Athletics
2016	Volunteering for SXSW comedy and planning operations crew
2015	Volunteer at Introduce a Girl to Engineering Day (Ballon rockets and iterative engineering design)
2014 - 2016	Participant of Texas Undergraduate Topology and Geometry conference
2013 - 2016	Active member of Math Club at UT Austin (should've bought a shirt)
2011 - 2016	Coursera, Udacity, and other MOOCs in Cryptography, Software Testing, Machine Learning, Database Management, AI, Automata Theory, Epigenetic Control of Gene Expression...
2011 - 2014	Longhorn Rocket Association (model rockets and software ground station work for a L2 rocket)
2010 - 2011	Member of Engineering for a Sustainable World, Robotics and Automation Society at UT Austin; Explore UT Guide; Austin Habitat for Humanity (helped roofed and fenced a house)
2007 - 2009	Volunteer work at Houston Methodist Hospital and Bellaire City Library