FENG LING

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PERSONAL INFO

Birth Year: 1992
Citizenship: China, People's Republic of
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EDUCATION

2016 - **University of Southern California**, Los Angeles, CA
Ph.D. Mechanical Engineering

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**, University of Southern California, PI: *Prof. Eva Kanso*
2016 **Teaching Assistant**, USC, Engineering Thermodynamics (AME 310)
2013 - 2015 **Research Assistant**, Center for Space Research at UT Austin, PI: *Prof. Srinivas Bettadpur*

HONOR and 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**, Aerospace Honor Society Sigma-Gamma-Tau UT Austin Chapter
2010 **Finalist**, Intel International Science and Engineering Fair

RESEARCH EXPERIENCE

2017 - **Instability-driven Oscillations of Active Microfilament**, supervised by *Prof. Eva Kanso*
Understanding the role of buckling instabilities and active forces on cilia beating models

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

2014 **Senior Design Project**, CubeSat Orbital Re-entry Vehicle System (CORVUS), in a team of 12
Investigated challenges and possible solutions for the CubeSat orbital (LEO) re-entry problem
In charge of simulation of the re-entry and parameter design for thermal subsystem

2011 - 2014 **for Longhorn Rocket Association**
Designed and implemented software ground station and developed post-flight sensor fusion analysis for a high power (L2) rocket payload, joint with *Scott Almond*
Designed and machined model rockets from primitive components (e.g. uncured fiberglass)

2010 - 2011 **TRICK Modeling and Simulation Research Initiatives**, in a team of 6
Generated Mars rover landing graphical simulation, results presented at NASA-JSC
Developed interfacing codes based on NASA software (TRICK, AGEA, and EDGE)

PAPERS

2018 Ling, F., Guo, H., Kanso, E., Instability-driven Oscillations of Active Microfilament, *in preparation*

TALKS

2018 **APS March Meeting**, Instability-driven Oscillations of Active Microfilament
2017 **APS Division of Fluid Dynamics (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

2017	USC Wrigley Marine Science Institute Spring Break Program on Sustainability
2016 -	DTLA Weightlifting (Trojan Athletics)
2016	SXSW comedy and planning operations crew volunteering
2015	Introduce a Girl to Engineering Day (Ballon rockets and iterative engineering design)
2014 - 2016	TexTAG: Texas undergraduate Topology And Geometry conference
2013 - 2016	Math Club (UT Austin)
2011 - 2016	Coursera, Udacity, and other MOOCs in Cryptography, Software Testing, Machine Learning, Database Management, AI, Automata Theory, Epigenetic Control of Gene Expression...
2010 - 2011	Engineering for a Sustainable World (UT Austin); Habitat for Humanity (e.g. helped roofed and fenced a house); Explore UT Guide; IEEE Robotics and Automation Society (UT Austin)