FENG LING

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PERSONAL INFO

Birth Year: 1992
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EDUCATION

2016 - **The University of Southern California**, Los Angeles, CA
PhD. 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**, Filament dynamics, supervised by *Prof. Eva Kanso*

2016 **Teaching Assistant**, Engineering Thermodynamics (USC AME 310)

2013 - 2015 **Research Assistant**, Center for Space Research at UT Austin

2011 **Summer Intern**, Zhongchu Development Stock Ltd., Tianjin Xingang Branch

AWARDS

2015 **Meritorious Winner Team Lead**, COMAP Mathematical Contest In Modeling
Problem B: Searching lost aeroplane in open water, general advise from *Dr. Andrew Spann*

2011 **Member**, Aerospace Honor Society Sigma-Gamma-Tau UT Austin Chapter

2010 **Team Lead**, Student Engineering Council Alternative Energy Challenge 3rd place

2010 **Finalist**, Intel International Science and Engineering Fair

PAPERS

2018 **Instability-driven Oscillations of Active Microfilament**, *Hanliang Guo, Eva Kanso*, *in preparation*

TALKS

2018 **APS March meeting**, Instability-driven Oscillations of Active Microfilament

2017 **APS Division of Fluid Dynamics**, Dynamics of Active Microfilaments

2016 **Mathematics Undergraduate Student Talks (MUST)**, LS category and its cousins

2015 **Directed Reading Program (DRP)**, (co)fiber sequences and $\pi_3(S^2)$, mentored by *Ernest Fontes*
DRP, What is persistent homology, mentored by *Ahmad Issa*

2014 **DRP**, Čech cohomology of projective spaces, mentored by *Dr Yuecheng Zhu*
DRP, Classification of Du-val singularities, mentored by *Dr Yuecheng Zhu*

2013 **DRP**, How to blow up double points in an affine plane and why you should do it too, mentored by *Dr Hendrik Orem*

OTHER PROJECTS

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 spectral data

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 and post-fit residue of the Earth gravity model

2014 - 2015 **For the CSE Certificate Program**, advised by *René Hiemstra*

Investigated applications of discrete exterior calculus and discrete differential geometry for exact conservation finite element methods (mixed-methods)
Explored some distributed computing implications using OpenMP

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

for Longhorn Rocket Association

2012 - 2014 Designed and implemented software ground station and developed post-flight sensor fusion analysis for a high power (L2) rocket payload, joint with *Scott Almond*

2011 Designed and machined model rockets from primitive components (e.g. uncured fiberglass)

2012 **for Satellite Navigation Courses**, advised by Prof. Todd Humphreys
Built a software GPS receiver based on Square Root Information Filters in MATLAB
Tested dual frequency carrier-phase differential GPS capability for the GRID receiver

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)

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, **B+**, *Prof. Christoph Haselwandter*
Incompressible Fluids and Turbulence, **A**, *Prof. Mitul Luhar*

2016 Fokas method (Audit), *Prof. Athanassios Fokas*

at 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, **B**, *Prof. Felipe Voloch*
K-theory as it appears in geometry, **A**, *Prof. Dan Freed*
4-Manifold Topology (Audit), *Prof. Robert Gompf*
Rational Homotopy Theory (Audit), *Dr Jonathan Campbell*
Differential Topology, **A-**, *Prof. Andrew Neitzke*
D-modules (Audit), *Dr Sam Gunningham*
Ergodic Theory and Dynamics (Audit), *Prof. Lewis Bowen*

2014 Real Analysis, **A**, *Prof. Lewis Bowen*
Algebraic Topology, **B**, *Prof. Michael Starbird*
Homotopy Type Theory (Audit), *Prof. Andrew Blumberg*
Complex Analysis, **A-**, *Prof. Thomas Chen*
Stochastic Detection and Estimation, **B+**, *Prof. Todd Humphreys*

2013 Finite Elements Methods, **A**, *Prof. Mary Wheeler*
GPS Signal Processing, **A-**, *Prof. Todd Humphreys*

MISC. ASSOCIATIONS

2016 - DTLA Weightlifting
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)