

# FENG LING

February, 2017

## PERSONAL

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**Birth Year:** 1992

**Citizenship:** China, People's Republic of

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## EDUCATION

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- 2016 - now      **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

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- 2017 - now      **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

## HONORS AND AWARDS

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- 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

## PROJECTS

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- 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
- 2014 - 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
- 2014 - 2015      Coding assists for GRACE spacecraft thermal environment modeling
- 2014              Analyzed correlations between GRACE accelerometer reading anomalies, thruster firing pattern, and star camera measurement deviations
- 2013 - 2014      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
- 2012 - 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*
- 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

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**at University of Southern California**  
Spring 2017 Incompressible Fluids, *Prof. Mitul Lubar*  
Fall 2016 Fokas method (Audit), *Prof. Athanasios Fokas*  
Engineering Analytical Dynamics, **A**, *Prof. Firdaus Udwadia*  
Incompressible Fluids, **A-**, *Prof. Paul Newton*  
Engineering Vibration, **A-**, *Prof. Bingen Yang*  
**at University of Texas at Austin**  
Spring 2016 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*  
Fall 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*  
Spring 2015 Differential Topology, **A-**, *Prof. Andrew Neitzke*  
D-modules (Audit), *Dr Sam Gunningham*  
Ergodic Theory and Dynamics (Audit), *Prof. Lewis Bowen*  
Fall 2014 Real Analysis, **A**, *Prof. Lewis Bowen*  
Algebraic Topology, **B**, *Prof. Michael Starbird*  
Homotopy Type Theory (Audit), *Prof. Andrew Blumberg*  
Spring 2014 Complex Analysis, **A-**, *Prof. Thomas Chen*  
Stochastic Detection and Estimation, **B+**, *Prof. Todd Humphreys*  
Fall 2013 Finite Elements Methods, **A**, *Prof. Mary Wheeler*  
Spring 2013 GPS Signal Processing, **A-**, *Prof. Todd Humphreys*

## CONFERENCE COURSES

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Fall 2015 **Topics in algebraic topology**, advised by *Prof. Andrew Blumberg*  
Mainly studying A Concise Course in Algebraic Topology (e.g. cup products (LS category), Poincaré duality, (co)fibrations and (co)fiber sequences, CW complex)

## TALKS

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Spring 2016 **Mathematics Undergraduate Student Talks (MUST)**, LS category and its cousins  
Fall 2015 **Directed Reading Program (DRP)**, (co)fiber sequences and  $\pi_3(S^2)$ , mentored by *Ernest Fontes*  
Spring 2015 **DRP**, What is persistent homology, mentored by *Ahmad Issa*  
Fall 2014 **DRP**, Čech cohomology of projective spaces, mentored by *Dr Yuecheng Zhu*  
Spring 2014 **DRP**, Classification of Du-val singularities, mentored by *Dr Yuecheng Zhu*  
Fall 2013 **DRP**, How to blow up double points in an affine plane and why you should do it too, mentored by *Dr Hendrik Orem*

## MISC. EXTRACURRICULAR

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2016 - now DTLA Weightlifting  
2014 - 2016 **Participant**, TexTAG: Texas undergraduate Topology And Geometry conference  
2013 - 2016 **Active Member**, UT Undergraduate Math Club  
2011 - 2016 **Coursera, Udacity, and other MOOC experiences**  
Completed with Statement of Accomplishment in Cryptography, Software Testing, Machine Learning, Database Management, Artificial Intelligence, Automata Theory, Epigenetic Control of Gene Expression, Exploring Particle World, and Classical Chinese Philosophy.  
2011 - 2014 **Active Member**, Longhorn Rocket Association  
May 2014 **Participant**, LeaderShape Institute  
Summer 2013 Programmed and assembled FPV-enabled quad-rotor PCB-frame MAV for fun  
2010 - 2011 **Active Member**, Engineering for a Sustainable World at UT Austin  
2010 **Member**, IEEE Robotics and Automation Society  
Participated in Robot-a-thon autonomous robot building competition

## **VOLUNTEERING**

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2016	SXSW (comedy and planning operations crew)
2015	Introduce a Girl to Engineering Day (Ballon rockets and iterative engineering design)
Summer 2013	UT Radionavigation Lab (Studying WAAS)
2011	Habitat for Humanity (Actually helped roofed and fenced a house) and Explore UT Guide
2009	Music Units Societies Everywhere (MUSE) and Bellaire Art Club
2007 - 2009	Methodist Hospital and Bellaire City Library