FENG LING

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PERSONAL

Birth Year: 1992
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EDUCATION

2016 - now **The University of Southern California**, Los Angeles, CA
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

2016 - now **Graduate Teaching Assistant**, USC (AME 310 Engineering Thermodynamics)
2013 - 2015 **Undergraduate Research Assistant**, Center for Space Research at UT Austin
2011 **Summer Intern**, Zhongchu Development Stock Ltd., Tianjin Xingang Branch

HONORS AND 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

PROJECTS

2016 **2D discrete inverse spectral problem**, supervised by *Prof. Etienne Vouga* and *Prof. Keenan Crane*
reconstructing discrete 2D genus 0 surfaces using only its Laplace-Beltrami spectral data

At Center for Space Research, supervised by *Prof. Srinivas Bettadpur*

2014 - 2015 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

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
Fall 2016	Fokas method (Audit), *Prof. Athanassios Fokas*
	Engineering Analytical Dynamics, *Prof. Firdaus Udwadia*
	Incompressible Fluids, *Prof. Paul Newton*
	Engineering Vibration, *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

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

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

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

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