

FENG LING

November, 2016

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

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 pat-
tern, 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

	at University of Southern California
Fall 2016	Fokas method (Audit), <i>Prof. Athanassios Fokas</i> Engineering Analytical Dynamics, <i>Prof. Firdaus Udwadia</i> Incompressible Fluids, <i>Prof. Paul Newton</i> Engineering Vibration, <i>Prof. Bingen Yang</i>
	at University of Texas at Austin
Spring 2016	Kac-Moody Algebras and Groups (Audit), <i>Prof. Daniel Allcock</i> Algebraic Geometry (Audit), <i>Prof. David Ben-Zvi</i> Riemann Surfaces (Audit), <i>Prof. Tim Perutz</i> Moduli of Higgs Bundle (Audit), <i>Prof. Andrew Neitzke</i>
Fall 2015	Algebra, B , <i>Prof. Felipe Voloch</i> K-theory as it appears in geometry, A , <i>Prof. Dan Freed</i> 4-Manifold Topology (Audit), <i>Prof. Robert Gompf</i> Rational Homotopy Theory (Audit), <i>Dr Jonathan Campbell</i>
Spring 2015	Differential Topology, A- , <i>Prof. Andrew Neitzke</i> D-modules (Audit), <i>Dr Sam Gunningham</i> Ergodic Theory and Dynamics (Audit), <i>Prof. Lewis Bowen</i>
Fall 2014	Real Analysis, A , <i>Prof. Lewis Bowen</i> Algebraic Topology, B , <i>Prof. Michael Starbird</i> Homotopy Type Theory (Audit), <i>Prof. Andrew Blumberg</i>
Spring 2014	Complex Analysis, A- , <i>Prof. Thomas Chen</i> Stochastic Detection and Estimation, B+ , <i>Prof. Todd Humphreys</i>
Fall 2013	Finite Elements Methods, A , <i>Prof. Mary Wheeler</i>
Spring 2013	GPS Signal Processing, A- , <i>Prof. Todd Humphreys</i>

CONFERENCE COURSES

Fall 2015	Topics in algebraic topology , advised by <i>Prof. Andrew Blumberg</i> Mainly studying A Concise Course in Algebraic Topology (e.g. cup products (LS category), Poincaré duality, (co)fibrations and (co)fiber sequences, CW complex)
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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 <i>Ernest Fontes</i>
Spring 2015	DRP , What is persistent homology, mentored by <i>Ahmad Issa</i>
Fall 2014	DRP , Čech cohomology of projective spaces, mentored by <i>Dr Yuecheng Zhu</i>
Spring 2014	DRP , Classification of Du-val singularities, mentored by <i>Dr Yuecheng Zhu</i>
Fall 2013	DRP , How to blow up double points in an affine plane and why you should do it too, mentored by <i>Dr Hendrik Orem</i>

MISC. EXTRACURRICULAR

2014 - 2016	Participant , TexTAG: Texas undergraduate Topology And Geometry conference
2013 - 2016	Active Member , UT Undergraduate Math Club
2011 - now	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