# FENG LING
February, 2018

## PERSONAL INFO

**Birth Year:** 1992
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## EDUCATION

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|---|---|
| 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

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|---|---|
| 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

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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 |

## PAPERS

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

## TALKS

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| 2018 | **APS March of Fluid Dynamics**, 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

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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 |
| 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

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| 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**

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| 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) |

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| 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 |

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| 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**

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|---|---|
| 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**

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| | 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

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| 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) |