KEVIN KORNER

PHD CANDIDATE

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Profile

I will begin my PhD program at Caltech in Fall 2016 focusing on Theoretical Mechanics and mathematical methods in engineering. My goal is to aid in the development and characterization of complex materials, including active materials.

Education

California Institute of Technology - Pasadena, CA
PhD, Mechanical Engineering
Fall 2016 - Spring 2022

University of California, Berkeley - Berkeley, CA
BS, Mechanical Engineering — **3.99 GPA**
Fall 2012 - Spring 2016

Skills

Mechanics

General coursework and experience in advanced dynamics, continuum mechaincs, thermoelasticity, and mathematics.

3D Printed MEMS

Developed 3D printed microfluidic devices that actuate and control microfluidic flows. Devices include capacitors, diodes, transistors, mixers, and visualizers.

Teaching

Proven ability to lead and manage a wide variety of courses. Experience includes student led courses as well as review sessions.

Software

AutoCAD	FEniCS	Mathematica
Arduino	LaTeX	Solidworks
Comsol	Matlab	Web Design

Experience

Hamburg University of Technology
Researcher
June 2016-August 2016

Worked on topology optimization of flexible multibody systems. This method tries to find the best distribution of material in a fixed design space. Therewith, this method allows for any formation of material inside the specified domain. So far, it has been mostly applied for static application.

Berkeley Sensor and Actuator Center
Researcher, Co-Director
February 2014-May 2016

Organized and facilitated various teams involving design, analysis, and data processing. Built and ran COMSOL simulations on optofluidic and 3D printed integrated microfluidic circuitry components as well as microfluidic mixing compoents to be published. Designed, fabricated, and tested real samples of 3D printed components. Designed experimental methods for testing procedures. Wrote Matlab scripts that process and present both simulated and collected data.

O'Reilly Research Group
June 2016- January 2016

Researcher

Derived and developed new equations for dynamic friction phenomena using statistical methods combined with impact mechanics and linear spring functions for understand and modelling various friction phenomena. Use differential geometry to discuss the implications of coordinate system motion on surface curves. The results are to be published.

The Liwei Lin Lab
July 2013-September 2013
Resarch Assistant

Conducted research in The Liwei Lin Lab on MEMS (Micro Electromechanical Systems) supercapacitors that use vertically aligned carbon nanotube forests as current collectors. Main responsibilities were growing the carbon nanotube on silicon wafers, assisting in testing the samples, developing new techniques, and writing programs in MATLAB to process and visualize collected data.

Honors and Awards		
NSF GRFP		2016-2021
Honors		2012-2016
Dean's Honors		Fall 2013

Publications

Glick C., Korner K., et al., "Single-Layer Microfluidic Current Source via Optofluidic Lithography", Micro Electro Mechanical Systems (MEMS), 2015 28th IEEE International Conference on. IEEE, 2015.

Sochol R., Korner K., et al., "3D Printed Microfluidic via Multijet Based Additive Manufacturing", Lab on a Chip, Issue 4, 2016.

Sochol R., Korner K., et al., "Microfluidic Circuitry via Optofluidic Lithography", (In Progress).

Korner K., et al., "Low Reynolds Number Mixing using 3D Printed Microfluidics", (In Progress).

Korner K., O'Reilly O., "Derivation and Modelling of a 3D Generalized Dankowicz Friction Model", (In Progress).