

# Kevin A. Korner

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## EDUCATION

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California Institute of Technology  
*Ph. D, Mechanical Engineering*

Pasadena, CA  
September 2016 - June 2021

University of California, Berkeley  
*Bachelor's, Mechanical Engineering GPA: 4.0 (Upper Division Technical)*

Berkeley, CA  
August 2012 - Present

## INTERESTS AND SPECIALIZATIONS

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Coursework in all the fundamental engineering topics with graduate level experience in Advanced Dynamics, Tensor Calculus, and Differential Geometry. Focus on developing skills in mathematics, dynamics, and continuum mechanics especially with regards to high deformation and active materials. Use these subjects to aid my research in developing mathematical models for complex phenomena, such as friction. I will be beginning my graduate studies at Caltech focusing on the mathematics of complex materials in Fall 2016.

## TECHNICAL EXPERIENCE

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Berkeley Sensor and Actuator Center (UC Berkeley)  
*Researcher, Co-Director*

Berkeley, CA  
February 2014 - Present

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 components 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 (UC Berkeley)  
*Researcher*

Berkeley, CA  
June 2015 - January 2016

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 (UC Berkeley)  
*Research Assistant*

Berkeley, CA  
July 2013 - September 2013

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.

## LEADERSHIP EXPERIENCE

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Pi Tau Sigma  
*President, Secretary, Student Relations*

Berkeley, CA  
December 2013 - Present

Communicate with Mechanical Engineering Department on addressing a variety of issues within the department. Meet with administration to discuss coursework alterations and department funding. Organize info sessions and events with companies to foster interest and recruit students for internships and full-time positions. Organize and lead tutoring and review sessions for students.

Student Engineering Instructor  
*Instructor*

Berkeley, CA  
August 2013 - December 2016

ME 198: Designed, facilitated, and taught "Mathematical Modelling of Engineering Systems". Created course outlines and taught topics related to our own fields such as Lagrangian Dynamics, generalized coordinates, Euler Angles, and the Buckingham-Pi Theorem.

E 98: Taught and facilitated "Surviving Berkeley Engineering" to help new engineering students assimilate to Berkeley. Taught topics relevant to new students including where to look for resources, motivating students to join student groups, and developing professional skills.

## PUBLICATIONS

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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, 2015.

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).

## HONORS AND AWARDS

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National Science Foundation - The Graduate Research Fellowship Program (NSF-GRFP) is a three year fellowship for graduate students to support research and inquiry into topics of their choice.

Honors - Fall 2012-Fall 2016

Dean's Honors - Fall 2013

## SKILLS

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**Software:** AutoCAD, Arduino, COMSOL, FEniCS, LaTeX, Matlab, Mathematica, Solidworks (CSWA: C-PL97ZTXSDE)

**Web Design:** HTML, CSS, JavaScript, jQuery

**Languages:** Fluent Portuguese (Brazilian), Proficient Spanish

**Hobbies:** Tennis, Guitar