# Adolfo Tec

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## EDUCATION

**University of California, Berkeley** — Berkeley, CA
Bachelor of Science, Mechanical Engineering (GPA: 3.16) — Dec. 2017
Coursework: Dynamic Feedback Control Systems, Microprocessor-Based Mechanical Systems, Rigid Body Dynamics, Lagrangian Mechanics, Continuum Mechanics, Advanced Engineering Graphics, Measurement and Instrumentation, Manufacturing and Tolerance

**Cypress College** — Cypress, CA
Pre-Engineering Coursework - Transfer (GPA: 3.83) — June 2013 - June 2015

## SKILLS

*Software/Programming:* PTC Creo/Pro-E, SolidWorks, AutoCAD, Autodesk 3DS Max, MATLAB, Simulink, LabVIEW, C++, Arduino, Visual Studio, MS Office
*Equipment:* 3-axis Mill, Lathe, 3D Printer, Laser Cutter, CFRP (Carbon Fiber Reinforced Polymer) Fabrication, Electronics
*Languages:* Spanish, French

## EXPERIENCE

*Undergraduate Research Assistant* — Oct. 2016 - July 2017
Human-Assistive Robotic Technologies/Mechanical Systems Control Lab

- Conducted research on the efficacy of active-passive exoskeletons to be used for upper limb assistance.
- Performed system identification and developed mathematical models for stiffness control of pneumatics experiment.
- Fabricated circuit boards for actuating test rig and performing data acquisition.

*Suspension/Drivetrain Member* — Feb. 2016 - Dec. 2017
UC Berkeley Human Powered Vehicle Team

- Collaborated with a multidisciplinary engineering team to secure 4th place Overall and 2nd place in Innovation for the ASME HPV Challenge.
- Partnered with suspension and drivetrain sub-teams to design and manufacture a compact four-bar suspension system enclosed inside the steering knuckle.
- Consulted for creating realistic finite element simulations for suspension components.
- Assisted in fabrication of carbon fiber frame and fairing using a wet layup process.

## PROJECTS

*Case Steam Traction Engine Animation* — Oct. 2017 - Dec. 2017

- Created a CAD animation to accurately depict the assembly and mechanics behind a CASE steam traction engine using 3DS Max and Adobe After Effects.
- Modeled 50 unique parts along with all material properties for rendering production in PTC Creo.

*Siesta Drink Dispenser* — Aug. 2017 - Dec. 2017

- Collaborated in a team of five to create a smart drink dispenser and secure the Frank Jarrett Prize for the department's most outstanding project in machine design.
- Responsible for writing volume control for an array of diaphragm pumps and temperature control for a heating element.
- Manufactured the final product using bending machines, mills, and water jets.

*Inverted Pendulum and Magnetic Levitation Controllers* — Aug. 2016 - Dec. 2016

- Developed equations of motion for a rectilinear dynamic cart and pendulum system and ran simulations in Simulink.
- Designed and implemented a state feedback controller to stabilize and self erect an inverted pendulum capable of disturbance rejection.
- Implemented and tuned an analog lead-compensator to levitate a metallic ball.