

# Ajay Krishnan

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## OBJECTIVE

Applying to the 5<sup>th</sup> Year Master's Degree Program in EECS at UC Berkeley. Interested in performing research in the field of power electronics with the UC Berkeley Power Electronics Group, specifically continuing my research on switched capacitor battery balancing for electric bike applications. Interested in further study in the Energy and Physical Electronics domains within the EECS department.

## EDUCATION

Aug 2014 - May 2018 **University of California, Berkeley**  
College of Engineering  
EECS  
Class of 2018

Sep 2001 - Jun 2014 **Oregon Episcopal School**  
Class of 2014

Jun 2011 - Aug 2013 **Portland State University**  
Non-Degree Student

## COURSES

### University of California, Berkeley

#### Fall 2014 - Fall 2017

CS 61A - Structure and Interpretation of Computer Programs  
CS 61B - Data Structures and Advanced Programming  
CS 70 - Discrete Mathematics and Probability Theory  
EE 20 - Structure and Interpretation of Systems and Signals  
Math 54 - Linear Algebra and Differential Equations  
Math 128A - Numerical Analysis  
Physics 7A - Physics for Scientists and Engineers I  
CS 61C - Machine Structures  
EE 40 - Introduction to Microelectronic Circuits  
EE 120 - Signals and Systems  
Physics 7B - Physics for Scientists and Engineers II  
EE 130 - Integrated Circuit Devices  
EE 105 - Microelectronic Devices and Circuits

EE 113 - Power Electronics  
Math 126 - Introduction to Partial Differential Equations  
EE 117 - Electromagnetic Fields and Waves  
EE 140 - Linear Integrated Circuits  
Physics 105 - Analytic Mechanics  
EE 219A - Numerical Simulation and Modeling

#### Spring 2018

EE 134 - Fundamentals of Photovoltaic Devices  
ME 229 - Design of Basic Electromechanical Devices

### Portland State University

#### Summer 2011 - Summer 2013

ECE 171 - Digital Circuits  
MTH 254 - Multivariable Calculus  
MTH 261 - Introduction to Linear Algebra

## TECHNOLOGICAL SKILLS

- **Software Programming Languages**
  - Java, Python, C, C++, C#, OpenCV, OpenMP, OpenGL, MATLAB, Scheme, Spark, Hadoop, R
- **Hardware/Simulation Languages**
  - COMSOL, HFSS, Maxwell, PLECS, HSPICE, Verilog, MIPS, Arduino, MPLAB, TINA, Logisim, Energia, Simulink, Virtuoso, CAD, LabVIEW
- **Web Programming Languages**
  - HTML, PHP, SQL, JavaScript

## WORK EXPERIENCE

May 2017 - Aug 2017 **Analog Design Engineering Intern**  
Texas Instruments  
Worked on DC-DC buck converters at TI Santa Clara

Aug 2016 - Present **Undergraduate Student Researcher**  
UC Berkeley  
Conducting research on power electronic converters and electric machines with the UC Berkeley Power Electronics Research Group, led by Professor Seth Sanders, Department of Electrical Engineering and Computer Science

May 2016 - Aug 2016 **Analog Design Engineering Intern**  
Texas Instruments

Worked on Hall Effect sensors in Kilby Labs at TI Dallas

Oct 2014 - Dec 2015

**Undergraduate Student Researcher**

UC Berkeley

Conducted research on printed batteries with the UC Berkeley Printed Electronics Research Group, led by Professor Vivek Subramanian, Department of Electrical Engineering and Computer Science

**RESEARCH EXPERIENCE**

**2017-Present:**

Switched Capacitor Battery Balancing for Electric Bike Applications

**2016:**

A Novel Low Offset High Bandwidth Hall Effect Sensor for Automotive Applications

**2014-2015:**

Development of Printable Encapsulation and Corrosion Resistant Zinc Electrodes for High Energy Density Silver Oxide Printed Batteries

**2013-2014:**

A Novel Power Management Device for Microbial Fuel Cell-Microbial Electrolysis Cell Coupled Systems

**2012-2013:**

A Novel Computerized Lip Reading System for Automatic Human Speech Recognition and Transcription

**PATENTS & PUBLICATIONS**

Nov 2016

Issued utility patent on Power Management Device for MFC-MEC Coupled Systems (Patent Number: 13/847,004)

Mar 2013

Filed for provisional patent on Mouth-Phoneme Model for Computerized Lip Reading (Application Number: 61/806,800)

**AWARDS**

- 2018 IEEE SFBAC PELS APEC \$1,000 Scholarship Recipient
- 2014 UC Berkeley Regents' and Chancellor's \$100,000 Scholarship Recipient
  - UC Berkeley's most prestigious merit-based scholarship, awarded to the top 200 undergraduates in each incoming class
- 2013 Davidson Fellows \$10,000 Scholarship Recipient
  - Among 20 Davidson Fellows selected from across the nation
  - Best Engineering Project
- 2013 Google Science Fair Regional Finalist
  - Among 90 Regional Finalists selected from across the world
- 2014 Intel International Science and Engineering Fair Finalist

**HONORS**

Feb 2018

Invited to attend the 2018 APEC Conference held in San Antonio, Texas as a fully-funded undergraduate student

Sep 2013

Travelled to Washington D.C. to attend the 2013 Davidson Fellows Awards Reception and to meet with members of the United States Congress as a high school student

Oct 2012

Presented research on MFC-MEC coupled system at the 2012 Water Environment Federation Technical Exhibition and Conference in New Orleans, Louisiana as a high school student