

# HONGXIANG GAO

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## EDUCATION

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**University of Southern California**, Los Angeles, California, United States *August 2018 - May 2020*  
Master of Science in Electrical and Electronics Engineering *Overall GPA: 3.93/4.00*

**ShanghaiTech University**, Shanghai, China *September 2014 - June 2018*  
Bachelor of Engineering in Electronic and Information Engineering *Overall GPA: 3.70/4.00*

## TECHNICAL SKILLS

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**C** (Familiar)                      **C++** (Familiar)                      **Python** (Familiar)  
**MATLAB** (Proficient)                      **VHDL** (Familiar)                      **Cadence Virtuoso** (Proficient)  
**LabVIEW** (CLAD Certification)                      **LaTeX** (Proficient)                      **COMSOL Multiphysics** (Familiar)

Most lab instruments including: waveform generator, oscilloscope, multimeter, soldering kit etc.

## EXPERIENCE

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**Developing and Optimization of ATOMS (Addressable Transmitters Operated as Magnetic Spins) Chips with Low Power Consumption** *January 2019 - Present*  
*Research Assistant - Advisor: Prof. Manuel Monge, IMedE Lab, University of Southern California*

- Exploration of new materials and new physics mechanism in optimizing the performance of magnetic sensor in the ATOMS (Addressable Transmitters Operated as Magnetic Spins) chips.
- Design and build prototype of ATOMS chip with low power consumption and peripheral test circuit.

**Exploration of Semiconductor Transportation and Spin Behaviors with Variable Magnetic Fields at Ultra Low-Temperature** *February 2017 - June 2018*  
*Research Assistant - Advisor: Prof. Xufeng Kou, Electronics & Spintronics Lab, ShanghaiTech University*

- Assisted in construction of the low-temperature magnetic and electrical measurement system provided by Oxford and Quantum Design and Magneto-Optical Kerr Effect experimental system with LabVIEW.
- Measured the magnetic and electrical performance of  $Cd_3As_2$  under extreme low temperature and analyzed its physical properties at quantum level.

## PROJECTS

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**Design an Efficient General-Purpose Pipelined CPU** *February 2019 - May 2019*  
*Coursework Project, EE577A - Advisor: Prof. Pierluigi Nuzzo, University of Southern California*

- Design and build the schematics and layout of general-purpose pipelined CPU and apply post simulation.
- Optimize each block to improve the clock cycle to 2.5ns and power consumption to 130mW.

**Folded Cascode Operational Amplifier Design** *September 2018 - November 2018*  
*Coursework Project, EE479 - Advisor: Prof. Dina El-Damak, University of Southern California*

- Designed the folded cascode operational amplifier to meet with the specification of amplification requirements by optimizing the 4-Level current bias, current mirror interface, operational amplifier and output stage by Cadence in schematics level.

## ACADEMIC ACHIEVEMENTS

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### Published Paper:

Large Hall angle-driven magneto-transport phenomena in topological Dirac semimetal  $Cd_3As_2$   
*Appl. Phys. Lett.* 113, 072104 (2018); <https://doi.org/10.1063/1.5037789> *ISSN: 0003-6951*

Third Prize, 2017 TI (Texas Instrument) Cup National Undergraduate Electronic Design Contest

Merit Student, 2016 ShanghaiTech University Manufacturing & Practice Project