Henry Kou

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University of California, Los Angeles
B.S. Electrical Engineering with breadth in Computer Science
Class of 2021
Major GPA: 3.5/4.0

COURSE HIGHLIGHTS

CS-33 Computer Architecture
CS-110 OS Design
CS-32 Data Structures
EE-115B Advanced Circuit Analysis
EE-141 Feedback Systems
EE-102 Systems and Signals
EE-113 Digital Signal Processing
EE-101B RF Waves and Antennae
EE-121B Semiconductor Device Design
EE-131A Probability in EE
EE-132A Communication Systems
M-33B Differential Equations
M-33A Linear Algebra

SKILLS

Analog Design:
Altium, Switching Power Regulators
Embedded & Digital Systems:
STM32, MSP430, PSoC, Altera FPGAs, RPi, I2C, SPI

SOFTWARE

C, C++, Python, Linux, Simplis/PSPICE modeling, Eclipse IDE, Mbed, Git, MATLAB, VHDL, SystemVerilog, ROS

EXPERIENCE

Texas Instruments, High Current Switching Regulators:
Analog Applications Engineer (2021 - Current)
Applications Engineer for high current switching power regulator group specializing in design/test of multi-phase buck converter evaluation modules and closed loop feedback design with publications. Rotated through Power Design Services (PDS) on various custom power designs for Alpine, Tesla, Xilinx and Conti AG with over $15M revenue tied.

Research Assistant, CMU Robotics Institute (Fall 2019 - Current)
Funded on embedded systems applications and high level theory for modular, space-grade, and underwater robotics for publication under Professor Howie Choset and Project Scientist Lu Li.

Raytheon Technologies: Digital Hardware Intern (Summer 2020)
Lab assistant and applications engineer for various digital hardware projects including power and thermal dissipation with aircraft-grade CLPDs and FPGA design.

UCLA IEEE: Workshops Technical Lead (2019)
Responsible for leading lectures, designing projects, and hosting technical workshops for outreach with UCLA's IEEE Branch. Topics: PCB Design, SMD Soldering, SPI, I2C, UART, Bluetooth

Naval Postgraduate School: Research Intern (Summer 2018)
Simulated and presented on the navigation of autonomous underwater vehicles using Simultaneous Localization and Mapping (SLAM) at the Center for Autonomous Vehicles

PROJECTS GLIMPSE

"Eigenbot" - Modular Robot for Rapid Prototyping
Pioneering distributed neural control on a custom modular robotic platform bioinspired by insect neural networks. System article for publication at IROS.

"Twin Turbo Multiphase Board" - Reference Design
Designed, assembled, and tested TI's stackable Buck Power IC up to 6 phases. Competed with industry standards of efficiency, load transient, and EMI.

"Micromouse" - Embedded Maze Solving Robot
Built from scratch robot with IR Sensors, wheel encoders; implemented PID and Floodfill in C. 1st Place Rookies (UCLA 2019), 3rd Place (UCSD 2019)

PUBLICATIONS

[1] H. Kou and P. Shalton, “EVM User’s Guide: TPSM64406EVM TPSM64406EVM 36-V, Dual, 3-A Output, Synchronous, Buck Module,” Texas Instruments, Nov. 2023. Available: https://www.ti.com/lit/ug/slvuct0/slvuct0.pdf

[2] E. Lee and H. Kou, “User’s Guide LMQ644A2-Q1 6-Phase Buck Regulator Design for Automotive ADAS Applications,” Texas Instruments, Jul. 2023. Available: https://www.ti.com/lit/pdf/snvaa32

[3] H. Kou and J. Hua, “User’s Guide LMR54450-Q1 36-V, 5-A Buck Converter Evaluation Module,” Texas Instruments, Jun. 2022. Available: https://www.ti.com/lit/pdf/slvucf0

[4] M. Davis-Marsh and H. Kou, “TPSM64404/06 3-V to 36-V, Low IQ, Dual 2/3-A Module Optimized for Power Density and Low EMI,” Texas Instruments, Dec. 2023. Available: https://www.ti.com/lit/gpn/TPSM64406

Works in Progress

Carnegie Mellon University Robotics Institute Publications (In progress)

[1] L. Li, J. Whitman, R. Wong, Z. Zhang, J. Subramanian, and H. Kou, “EigenBot: a Modular System for Rapid Robot Prototyping,” Carnegie Mellon University Robotics Institute, 2023.

EigenBot:_A_Modular_System_for_Rapid_Robot_Prototyping

[2] Z. Zhang, H. Kou, J. Ma, Y. Jin, L. Li, and H. Choset, “Distributed and Neural Bioinspired Control of Modular Hexapod Locomotion,” 11292023Distributed_and_Neural_Bioinspired_Control_of_Modular_Hexapod _Locomotion.pdf

AWARDS

2021 - UCLA IDEAHacks 2nd Place: Gnome
2020 - UCLA IDEAHacks Honorary Mention: Salt-o-matic
2019 - California Micromouse Competition at UCSD Third Place: Team HITB
2019 - All American Micromouse Competition at UCLA First Place 1st Year: Team Orphans
2016 - Silicon Valley Regional Team 2035 FRC Chairman’s Award
2014 - Silicon Valley Regional Team 2035 FRC Engineering Inspiration Award

PROJECT PORTFOLIO