Junyan Su

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EDUCATION

Sept.2015-Present **ShanghaiTech University** **Shanghai, China**
B.S.E. Candidate in Computer Science
GPA: **3.81 /4.0** Ranking : **2/95**

Aug.2018 - Present **University of California,** **Berkeley,CA,USA**
Concurrent Enrollment Student at College of Engineering
Courses:
Feedback Control Systems by *Prof. Ronald Fearing*
Introduction to Embedded Systems by *Prof. Prabal Dutta* and *Prof. Sanjit Arunkumar Seshia*
Introduction to Robotics by *Prof. Ruzena Bajcsy*

RESEARCH INTEREST

Embedded Development
Optimal Control

RESEARCH EXPERIENCE

June-Aug. 2018 **Carnegie Mellon University** **Pittsburgh, PA, USA**
Robotics Institute Summer Scholars Program
Advisors: Prof. Howie Choset & Lu Li
To design one logic-circuit-level layout with Verilog to fetch data from multiple sensors and reduce CPU intervention time.
Responsibilities:
- Designed a logic circuit to collect sensor data via I^2C which is a widely-used protocol for sensor data collection.
- Tested its performance on a multi-sensor system(4 hall sensors and 1 IMU).
- Compared the intervention time and efficiency of data collection between the traditional design (CPU version) and the proposed design.

Achievements:
- Reduced the CPU intervention time from 2000 microseconds to 5 microseconds.
- Doubled the sampling rate of data fetch and enhanced the accuracy of Mahony Filter within +/-0.5 degree.
- In the future, the layout can be integrated into an IP core (semiconductor intellectual property core) for further application.

Sept. 2017 - May 2018 **Robomasters 2018** **Nanjing,China**
Advisor: Prof. Andre Rosendo
RoboMaster is one annual international robotics competition to invite teams consisting of aspiring engineers to design, build next-generation robots and complete challenging tasks.
Responsibilities:
- Lead the team for embeded systems development.
- Designed the outlooks and tactical systems of different robots based on demands, including 3 infantry robots, 1 engineer robot, 1 hero robot, 1 supply robot, 1 aerial robot and 1 sentry robot.
- Built hardware structures (with stm32F4xx) of different robots to satisfy various demands.
- Utilized FreeRTOS framework for multi-thread programming, implemented functions on driver level, control level and command level, respectively.

May 2018 - Present **A Software for Interval Superposition Model** **Shanghai,China**
Advisor: Prof. Boris Houska
Our software provides a tool with user-friendly API to construct enclosures of the image set of non-linear functions easily and efficiently, which is needed by a wide variety of numerical computing and control algorithms.
Responsibilities:
- Develop a software for intervel superposition arithmetic.[1]

[1] Y. Zha, M.E. Villanueva, B. Houska. Interval superposition arithmetic. Technical report, 2018. PDF available at https://arxiv.org/abs/1610.05862

TECHNICAL SKILLS

Programming Languages: C/C++, Python
Scientific Tools: MATLAB, Mathematica, ROS, Multism
Hardware Design: Arduino, pSoC, STM32xx,Verilog, Cadence Virtuoso
Office Applications: LaTeX, Microsoft Office

AWARDS & HONORS

2016,2017 Scholarship for Academic Excellence, ShanghaiTech University

Oct.13 2017 Most Innovative Robot in Rescue Robot Competition,
IEEE International Symposium on Safety, Security and Rescue Robotics

TEACHING

Feb. - Jun. 2017 Teaching Assistant of *Introduction to Information Science and Technology*
Responsibilities:
- Assisted professor in grading programming and writing assignments
- Helped students in the lab : corrected their mistakes and gave lecture about how to complete the lab.
- Hosted office hours to answer questions from students

Sept. 2017 - Jan. 2018 Teaching Assistant of *Electric Circuits*
Responsibilities:
- Helped students in the lab : correct their mistakes and give lecture about how to finish the lab.
- Hosted office hours to answer questions from students
- Provided guidance and direction to enhance understanding of the course material
- Designed one of the final projects

COURSES

CATEGORY	COURSE	GRADES
Computer Science	Data Structures	A+
	Computer Architecture	A
	Introduction to Algorithms	A
	Operating System	A-
	Introduction to Robotics	In Progress
Electronic Engineering	Electric Circuits	A
	Signal and Systems	A
	Introduction to Control	A+
	Signal Detection and Estimation	A
	Integrated Digital Circuits	A+
	Feedback Control Systems	In Progress
	Introduction to Embedded Systems	In Progress
Mathematics	Calculus	A
	Linear Algebra	A
	Probability and Statistics	A+
	Discrete Mathematics	A
	Convex Optimization	B