
EDUCATION

M.S., Electrical and Computer Engineering, UC San Diego	06/2021 (Expected)
• Current GPA: 4.0/4.0	
B.S., Physics, Fudan University	06/2019
• Graduated with Excellent Student Award	
Exchange, Computer Science, Humboldt Universität	04/2018 – 08/2018

Research Experience

BEV-Net: Social Distancing Detection with Geometric Reasoning	2020
Statistical Visual Computing Lab, UC San Diego	
• Designed a multi-task privacy-preserved network for detecting area where people are violating social distancing restriction with a monocular surveillance system	
• Developed a unified framework based on PyTorch, which supports training and testing networks of different configurations and optimal hyper-parameter searching	
• Worked with teammates to create a new dataset, CityUHK-X-BEV, for the social distancing task	
• Defined and solved the geometry problem of reasoning people's ground position	
• Developed the user interface for geometry calibration with PyQt5	
• Developed and verified the proposed differentiable homography transformation module at different input scales	
Autonomous Driving System for Mail Delivery in UC San Diego	10/2019 – 12/2019
Autonomous Vehicle Lab, UC San Diego	
• Developed script tools for quick deployment and maintenance of autonomous vehicle software	
R&D of Commercial Low-power SoC Software	2018-2019
Camel Microelectronics Inc., San Jose, CA	
• CamelStudioX, An IDE for software development of targeted low-power SoC, including	
– Designed the user interface and program all the functional modules	
– Developed a hardware abstract layer library to provide users with concise APIs to manipulate modules on SoC	
– Developed essential standard GCC library functions, such as soft-float library, stdio, etc.	
– Developed cross compiler toolchains, including the GNU C/C++ compilers, custom make system, an ELF analyzer and converter which generates firmwares for bare metal systems	
– Designed robust serial-port software for the communication between the SoC and the upper PC, e.g. uploading firmware, debugging interface	
– Deployed the IDE on servers for software distribution and update release	
• Worked with teammates to test SoC and developed software patches for hardware hotfix	
Prototype Ultrasonic System for Measuring Blood Flow Field	2018-2019
• Used AutoCAD and SolidWorks to design the system	
• Designed and established the electronic system for measurement	
• Collected and analyzed the data to reconstruct the blood flow velocity distribution	
Robot Capable of Self-balancing on a Pivot	2017-2018
• Designed and built the mechanical system using SolidWorks	
• Implemented the PID controller and finished the hyper-parameter tuning	
Study of the Thermal Dynamics of Pipette Hot Fountain	2016
• Created the physics model of pipette hot fountain	
• Did the simulation of pressure and temperature distribution inside the pipette with COMSOL Multiphysics	
• Designed and constructed the system to verify the proposed physics model	

For more exciting projects and details, please visit: <https://daizhirui.github.io/projects>

Teaching Experience

Teaching Assistant, Physics Department, Fudan University	01/2019 – 07/2019
• Physics Modelling	
Teacher, the Second Affiliated Junior School of Fudan University	01/2019 – 07/2019
• Arduino Programming	
Teaching Assistant, School of Information Science and Technology, Fudan University	2018-2019
• SoC: Theory and Implementation	

SKILLS

- **Programming:** C, C++, Python, Assembly, Swift, Java, Shell Script, HTML, CSS, Javascript
- **Software Development:** Qt5, macOS App, iOS App, Android App
- **Machine Learning:** PyTorch, MXNet, Tensorflow
- **Virtualization:** Docker, VMWare
- **Math Software:** MATLAB, Mathematica
- **Design Software:** AutoCAD, SolidWorks
- **Circuit Design:** Verilog, Cadence, Quartus, Modelsim
- **Hardware:** STM32, Arduino, Raspberry Pi, FPGA
- **Other:** Git, Latex

HONORS & AWARDS

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|---|-------------------|
| • Excellent Graduated Student Award | 06/2019 |
| • Scholarship for Outstanding Students at Fudan University | 12/2018 & 12/2017 |
| • 2017 Hornors Student Award in Physics | 07/2017 |
| • Xu Zeng-shou Scholarship | 12/2016 |
| • The first prize of China Undergraduate Physics Tournament(CUPT) | 08/2016 |
| • The champion of Shanghai Undergraduate Physics Tournament(SUPT) | 07/2016 |