

Yubao Liu

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Education & Training

201810-202110, **Doctor Degree Candidate, Computer Science and Engineering, Toyohashi University of Technology, Active Intelligent Systems Laboratory**, Aichi, Japan

201710-201808, **Professional Japanese Language Training, Northeast Normal University, the Training Center of Ministry of Education For Studying Overseas**, Jilin, China

201209-201506, **Master of engineering, College of Information Engineering, Capital Normal University**, Highly Reliable Embedded System, GPA3.4/4.0, Beijing, China

200809-201206, **Bachelor of Science, College of Computer Science, Qufu Normal University**, Computer Science and Technology, GPA 3.4/4.0, Shandong, China

Work Experience

201608-201809, **Senior Software Engineer, iSoftStone Information Technology(Group)Co.,Ltd.**, Beijing, China

Cooperate with Lenovo Research Center, and proceed project development and academic research.

Project: Personal Computing Augmented Reality(AR) Glass Development, 1.5 years

Develop lightweight AR glass (small size, light weight, suitable for personal PCs), which is for office use. It is more competitive than others. The prototype of it has completed. What I am responsible mainly includes: * **(Inertial Measurement Unit) IMU**: use IMU to estimate the pose of AR glass, evaluate and make decision for IMU algorithms IMU and magnetic sensor calibration, data fusion. Design tracking demo use IMU in Unity3D.

- **Tracking**: in order to locate the original point of 3D world, proceed target recognition or marker tracking using OpenCV, EasyAR, Kudan, Wikitude, and Vuforia
- **(Simultaneous Localization and Mapping)SLAM**: SLAM solution selection and application development using ORBSlam, DSO, Vuforia extended tracking, EasyAR, and Kudan SLAM
- **Native SDK**: firmware on STM32 MCU is programmed with C and the SDK talk with firmware on Windows is programmed with CPP, and the SDK offers API called by Unity3D C#.
- **GUI HCI design**: C# control panel for monitoring and controlling AR glass hardware, adjust parameters of IMU, Camera, Sensors and upgrade firmware version
- **Unity3D AR** main program is programmed in Unity3D with C#, including glass tracking demo using IMU, Vuforia extended tracking and some other SLAMs
- **Window System Service**: AR glass plug and play using C#

Project: Python Spider, 2 Months Proceed python spider in the aid of Scrapy, Xpath, Regular Expression(RE) to grasp data like user comments, articles. And then save these data to database (eg.MongoDB) to conduct further data analysis.

Project: Voice Meeting Software, 2 Months To develop a Windows APP for voice meeting. Evaluate and verify the possible technologies and write demo codes(C# WPF) for: - hardware device plug and play on Windows - record mic device and do voice translate - record sound card device and do voice translate Voice engine is implemented in the aid of Baidu/KeDaXunFei voice engine, etc..

Project: Little Toy Robot To develop a comany robot, equipped with simple face expression identification and voice recognition using Raspberry Pi, Linux, Python.

- Keyword: AR HMD glass, Computer Vision, SLAM, Unity3D/c/c++/C#, Android/Linux

201506-201606, **Software Engineer, Intel China Research Center Ltd. IT FLEX**, Beijing, China

Imaging, Computer Vision; USB (USB3 and XHCI) Pre-silicon verification; Perl/Python/shell scripts with regular expression

- **USB Pre-silicon Verification**: cooperate with Folsom, California USA Team to debug and validate USB and XHCI new features in the next generation CPU (e.g. ice lake) via reviewing USB3 and XHCI specification again and again and writing functional coverage and test cases using system Verilog for validation on USB simulation platform based on Linux
- **Automotive scripts and apps**: text processing with regular expression and writing scheduled automation programs; grepping useful message from larger files quickly and automatically; wring automotive scripts using Perl/Python/Shell to generate Verilog or c/cpp source code using predefined format
- **Computer Vision for Intelligent Robot**: cooperate with Intel Lab to do code optimization for smart robot which can follow people through detecting human via Real Sense Camera
- Keyword: Real Sense Camera, Visual Studio, C/C++/Perl/Shell/Python/System Verilog, Cmake, OpenCV, Linux, ace, Emacs, Regular Expression

INTERNSHIP EXPERIENCE

201502-201506, **Software Engineer, Intel China Research Center Ltd. IT FLEX**, Beijing, China

Face Beauty App on Android Telephone; image processing; Rewriting OpenCV basement API function to native API in Android(NDK/JNI) app so as to make it lightweight

201302-201403, **Next Generation Network Laboratory, Tsinghua University**, Beijing, China

Linux TCP/IP IPv4 and IPv6 server development; "Control Electric Socket Remotely by Telephone in WiFi IPv4&6 Network"; Embedded ARM Linux programming and ZigBee (uIP (RPL, CoAP, 6LoW-PAN), and Contiki)

201207-201209, **R&D Department, Beijing Cyb-Bot Technology (Cyb-Bot)**, Beijing, China

IOT teaching and research device (Super-IOT), Ember Znet ZigBee and TI ZigBee protocol, WiFi, STM MCU driver programming, WSN and ARM Linux

201203-201206, **R&D Department, Beijing Universal Pioneering Technology (UP-TECH)**, Beijing, China

Program robot teaching device to control Industrial Robots using ARM

Academic

[1] RTS-vSLAM: Real-time Visual Semantic Tracking and Mapping under Dynamic Environments, 2020, under review, **demo**

[2] Chen, W., Liu, Y. & Wang, H. **On Storage Partitioning of Internet Routing Tables: A P2P-based Enhancement for Scalable Routers**[J]. SCI, Peer-to-Peer Networking and Applications, 2015, 8(6):952-964

[3] Liu Y., Chen W. **Multicast Storage and Forwarding Method for Distributed Router** [C]. EI, Internet Conference of China. Springer, Berlin, Heidelberg, ICoC 2014:Frontiers in Internet Technologies pp106-117

[3] , . [J], 2015, 32(8)

Others

- Facebook: <https://facebook.com/yubaoliu89>
- Bilibili: <https://space.bilibili.com/52620240>
- Youtube: <https://www.youtube.com/channel/UCqZrQadBvV7-gbt5cc6yCtQ>
- Blog: blogger.yubaoliu.cn