QIAN-HAO HUANG

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Summary

- Worked in both big company and startup; able to work independently but also a great team player.
- Broad ranging experience and knowledge in the following areas - robotics, software engineering, embedded system, computer architecture, signal processing, hardware prototyping, management.
- A passionate, curious, and active learner with quantitative / analytic mindsets to probe, test and decompose challenging system problems into root cause issues and solve them.

Specialties:
- Solid knowledge of robotic geometrical perception algorithms - SLAM, pose-estimation, navigation, etc.
- Familiar with various programming languages - C, C++, Java, Python, Matlab, shell script, etc.
- Familiar with various modern software dev-tools - CMake, Docker, git, etc.
- Familiar with various software libraries for robotics - ROS, OpenCV, PCL, Eigen, MRPT, etc.
- Experience with processing various types of sensor data - LiDAR, sonar, infra-ray, depth/mono camera, e-compass, IMU, etc.
- Experience with continuous integration and development, agile methodology.
- Experience with digital circuit prototyping - HDL programming (Verilog), FPGA.
- Experience with analog circuit prototyping - PCB schematic, layout and verification.

Experience

Specialist (Robotic AI Algorithm Developer)   03/2016 ~ 06/2018
AsusTek, Intelligent Robot BU., Computer Vision Dept., Taipei

- In charge of Zenbo's localization system
  - Design and implement Zenbo's localization system as Android service.
  - Define the localization APIs for internal app developers to use.
  - Develop simulation and data-capture tools to verify and ensure Zenbo's localization functionality operate smoothly in various indoor environments.
  - Maintain, implement and improve localization algorithms.
  - Work with cross-functional teams to verify and integrate new sensors on Zenbo.

- ○ Research, analyze and verify third-party softwares and alternative solutions.
- ○ Convert academical publications to real-world implementations.

Senior Engineer   04/2016 ~ 02/2016
AsusTek, New Product Business Planning Dept., Taipei

- Participated as a key member of a small, cross-functional team to create a new robot product.
- Supported the team as an expert in robotic SLAM technologies.
- Design and implement mobile robot SLAM system using various sensors.
- Integrate mobile robot SLAM algorithms into the native layer of Android app on computational limited platforms.
- Sensor components selection and evaluation.
- The new robot product "Zenbo" launched at Computex Taipei 2016.

Engineer   05/2014 ~ 12/2014
Midas (A very-young startup IC design house focusing on touchscreen control IC)

- Served cross-functional role in this very-young startup company - engineer, project manager and assistant.
- Design and implement firmware as the communication interface between IC and PC.
- Prototype, verify the signal processing algorithm of the IC using HDL language (Verilog) and FPGA emulation platforms.
- Prototype, Verify the analog circuits of the IC using breadboards and PCB.
- Review the technical documents of hardware components on PCB schematics
- Review the layout file of the PCBs before manufacture.
- Verify the PCBs sent back from the manufacturer.
- Maintain BOM lists, stock of components and material.

Advanced Engineer   10/2011 ~ 04/2014
USI, Nantou

- Collaborated with Motorola Solutions (USA)
- Responsible for system software (BSP) of smart handheld devices
  - ○ Lead device platform team (4-5 engineers) responsible for system bring-up and OS(Android) porting
  - ○ Customize audio framework of Android system.
  - ○ Design methods of audio latency measurement in Android framework.
  - ○ Customize and debug general embedded system feature, such as keypad, SD card, audio, UI, power management, etc.

- Design and implement software tools for mass-production line
  - Design an Android Multi-Flash tool (Win32 Application) for industrial mass-production line.
  - Design IC-module functional testing tool based on bootloader (U-Boot) to replace the one relies on OS environment. This improvement significantly accelerates testing procedure of manufacturing.
- In charge of new hires training on Android / Linux kernel.

Education

- **M.S. Electrical Engineering**, National Taiwan University, Taipei   06/2010
- **B.S. Electrical Engineering**, National Taiwan University, Taipei 06/2008

Publication

- **"Thesis: Sound Source Localization and Speech Interaction System for Intelligent Mobile Robots"**, Advisor: Ren C. Luo

- **"Search and Track Power Charge Docking Station Based on Sound Source for Autonomous Mobile Robot Applications"**, *Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference, October 2010*

- **"Human Tracking and Following using Sound Source Localization for Multi-Sensor Based Mobile Assistive Companion Robot"**, *IECON 2010 - 36th Annual Conference on IEEE Industrial Electronics Society, November 2010*

Certification

- **English - TOEIC 900**
- **Machine Learning - Stanford University (Coursera)**
  - **Certification https://www.coursera.org/account/accomplishments/certificate/8RGHSYUZQFPA**
- **Self-Driving-Car (Term 1) on Udacity**

Languages

- **Chinese**: Native language
- **English**: Intermediate Listener, Intermediate Speaker, Advanced Reading and Writing