ChengHe Wu

SOFTWARE ENGINEER

Details

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LongYan city Fujian
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brianwchh@gmail.com

DATE OF BIRTH

1983.03.02

NATIONALITY

Chinese

Skills

- Node.js
- React
- HTML
- MySQL
- CSS
- C++
- SQL
- Python
- JavaScript
- verilog HDL
- CUDA
- openGL
- C

Profile

- Over 11+ years of R&D work experience,capable of designing and deploying computer vision and deep learning algorithms on embedded device like FPGA and ARM.
- Full stack web development with Django,React/Vue/Nextjs,MySQL,Nodejs,Golang, etc....
- skilled at FPGA / ZYNQ SOC design (Verilog HDL)
- good at GPU (CUDA + openGL)
- Master programming languages: C/C++, python, javascript, Golang,verilog HDL
- Familiar with Deep learning libraries like Tensorflow, Darknet...
- rich work experience in : SLAM / Visual SLAM, ROS, VR, AR, 3D sensing (Streo vision), object detection, motor control
- more on Linkedin: https://www.linkedin.com/in/brianwchh/

Github & project demos

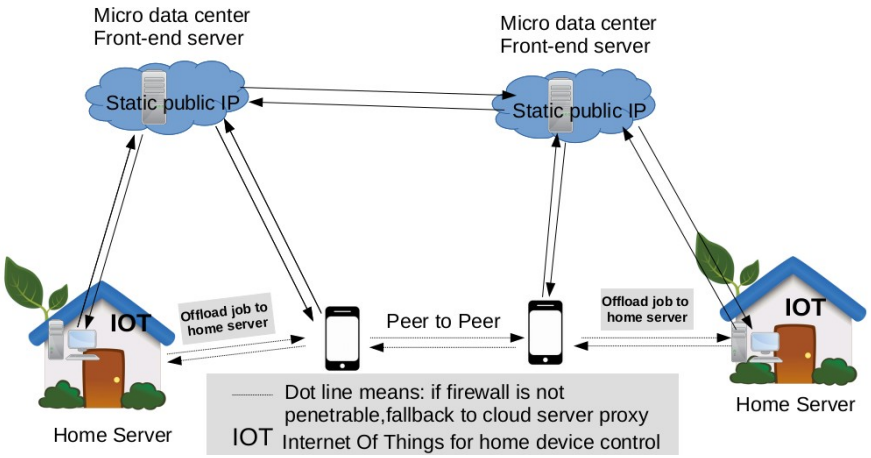
- stereo vision SGM (computer vision algorithm) on FPGA / ZYNQ: https://github.com/brianwchh/grassrootsstartup-ComputerVsion-zynq
- DecensorMedia (decentralized social networking web): https://decensormedia.org/download/
- My 3D sensor + object detection: https://youtu.be/BIUoqIPO0g8
- Real-time disparity demo: https://youtu.be/se1tIy5UWpE
- Measurement by vision : https://youtu.be/iO0MZLmZf58
- SLAM: https://youtu.be/7n-UNKBmUIE
- Panoramic stitching (first version) : https://youtu.be/HCIf8AKpDgk
- zynq-VDMA-driver-StereoVisionApp: https://github.com/brianwchh/zynq-VDMA-driver-StereoVisionApp.git
- back-propagation on convolutional layer for company techShare: https://github.com/brianwchh/back-propagation.git
- build your own Go framework : https://github.com/brianwchh/buildGoFrameWork

Employment History

Founder at DeCensorMedia, Jeju City

MARCH 2020 — PRESENT

- develop open source and decentralized personal social networking website which is free of censorship and data collection. it is more than just a website + chat app, it is a home server + cloud server based IOT system that enables one can send message or video call to people in any corner of the world,and promote his business with this website as well. Since it is an home IOT system, one can manage home devices remotely,and also off load a lot of time consuming programs from cellphone to home server.
- website: https://decensormedia.org/
- project github: https://github.com/DeCensorMedia/DeCensorMedia.git
- intro video in English: https://youtu.be/xdIM_0O5Ojg
- intro video in Chinese:https://youtu.be/HWrEn2BFcM8
- intro ppt : https://github.com/DeCensorMedia/DeCensorMedia/blob/main/docs/DeCensorMedia.pdf
- system architecture:



Senior engineer at NCS Singapore, Singapore

JUNE 2018 — SEPTEMBER 2019

- develop fall prevention algorithm and prototype with 3D sensor. In this project I detect the patient’ s 3D sensor using openpose package and 3D sensor. Openpose generate a 2D skeleton of a person, with 3D sensor it can extend to 3D skeleton, base on the pose and position of the patient on the bed we can tell its current position and predict his/her next position and pose, and trigger alarm if we predict he is trying to get off the bed.
- train face detection and optimize for arm platform.This project is to calculate the average time of a visitor spending from entering the entrance to leaving the exit, so that the administration can decide how many counter should open to best balance the manpower and the customer’ s waiting time in the queue. Face detection is carried out in edge device, recognition in the back-end server.

founder at 3Deepercept, ShenZhen

MAY 2017 — JUNE 2018

- In this project I develop C++ version of algorithm to verify the ideas on computer and develop a first version prototype, then deploy the C++ algorithm to verilog HDL and run on FPGA(Xilinx zynq) which is the second version prototype. I design the linux device driver for zynq to bring up the HDMI display so the disparity map can be seen on screen, transmit the disparity map to host computer via usb as well. For object detection I use YOLO!
- I have opensourced this project in github: https://github.com/brianwchh/grassrootsstartup-ComputerVsion-zynq

Senior embedded software engineer at go6D, Shenzhen

OCTOBER 2015 — OCTOBER 2016

- in this project I design the algorithms to stitch two images from two fisheye camera to generate one panoramic image. In the prototype stage I use openGL to do the stitching and rendering for perspective viewing a desired portion of the image. In later version stitching is implemented in CUDA.
- video demo : https://youtu.be/HCIf8AKpDgk

Project manager at China-creator, Shenzhen

JUNE 2014 — FEBRUARY 2015

- ATM magnetic card reader and writer, motor control using FPGA In this project I control the DC motor with PI algorithm on FPGA, so that the movement of the bank card is very accurate while reading of writing information.

- OCR for cash ID recognition on ARM using shallow neural network to train and predict the Cash ID from scanning camera, implemented on ARM .

Senior FPGA engineer at Maxphotonics, Shenzhen

JULY 2013 — MAY 2014

- FPGA design for Q-switch Laser control
- FPGA design for MOPA Laser controlfor both project I use FPGA to generate the desired width of the PWM pulse and frequency to control the power of the laser output.

FPGA FAE at Comtech Digital, Shenzhen

AUGUST 2011 — MAY 2013

- wireless customer support

Senior FPGA engineer at RITS (The Research Institute of Tsinghua University in Shenzhen), Shenzhen

AUGUST 2010 — AUGUST 2011

- Digital optical fiber repeater

FPGA algorithm engineer at grandlinking, Shenzhen

MARCH 2008 — AUGUST 2010

- OFDM CMMB/DMB-T modulatorIn, in this project I use FPGA to implement FFT/iFFT, RS/BCH coding,ect...
- DPD(digital pre-distortor) in this project I use Xilinx DPD IP core, need to down-sample and up-sample the signal to meet the sampling frequency requirement for the IP core.
- Digital Optical Fiber Repeaterusing CIC, CIC-compensation,FIR filter for down-sampling and up-sampling, channel power control, optical serdes, ect...

Education

Physics, Yi Chun university

SEPTEMBER 2003 — JULY 2007