

# Curriculum Vitae

## Contact info

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## Education

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**National Taiwan University, Taipei, Taiwan** (2008/9 - 2010/11)

**Master of Science in Networking and Multimedia**

Master thesis: Algorithm and Architecture Design of Multi-rate Frame Rate Up-conversion in Quad High Definition Liquid Crystal Display System (score : 95.0/100.0) [\[PDF\]](#)

Overall GPA: 4.0/4.0 (93.04/100.00) Rank : 2/43

Got rank 1 (of 39 students) in 2008 fall semester.

**National Taiwan University, Taipei, Taiwan** (2004/9 - 2008/6)

**B.S Degree in Electrical Engineering**

Overall GPA: 3.08/4.00 (76.58/100.00) Rank : 177/207

Got high scores in computer science subjects, average GPA: 4.00/4.00 (90.55/100.00)

## Work Experience

<http://fcchen.cc/work.html>

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**Senior Software Engineer - Algorithm Developer** (2010/12 - present)

Pixart Imaging Inc., Hsinchu, Taiwan

**Machine learning (2 years)**

Face detection, Expression recognition, Face recognition, Face tracking Support vector machine (SVM), Multi-class boosting, Image feature extraction, Image compression

**Capacitor touch panel (0.5 year)**

Digital AM signal processing, Finger extraction, Finger separation, Finger tracking, Cascaded integrator comb (CIC) filter

**2.4G modem (0.5 year)**

Analog signal synthesis, Digital FM signal processing, Packet detection, Frequency offset recovery, Timing offset recovery, Cordic

## Research Experience

<http://fcchen.cc/demo.html>

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### Media IC and System Lab, National Taiwan University (2008/9 - 2010/11)

Advisor : Prof. Shao-Yi Chien

Topic : Algorithm and Architecture of Multi-rate Frame Rate Up-conversion

Frame rate up-conversion, Markov random field, True motion estimation, Video analysis and processing, Ping-pong scheduling, Motion grouping, Inverse compensation scheduling, Digital IC design

### AU Optronics Corp., Industry-university Collaboration (2008/9 - 2009/10)

Advisor : Prof. Shao-Yi Chien

Topic : Architecture Research of Global Motion Based Frame Rate Up-conversion

Frame rate up-conversion, Global motion estimation, Affine model, Motion estimation architecture

### The EDA Lab, National Taiwan University (2008/2 - 2008/6)

Advisor : Prof. Yao-Wen Chang

Topic : Optimization problems in back-end design of EDA

Dynamic programming, Convex linear programming, Standard cell placement, Displacement minimization problem

## Patents

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### Home appliance control device

*Fu Chen CHEN, Hsin Chia CHEN, Yi Hsien KO, Ming Tsan Kao*

Issued April 9, 2013, United States US8417385 B2

Issued March 20, 2013, China CN102981459 A

### Capacitive touch device

*Fu Chen CHEN, Ming Tsan Kao, Yu Han CHEN*

Filed March, 2013, United States

Filed March, 2013, Taiwan TW102107772

Filed March, 2013, China CN201310085351.2

## Publications

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Yung-Lin Huang, **Fu-Chen Chen**, Shao-Yi Chien, “*Algorithm and Architecture Design of Multi-rate Frame Rate Up-conversion in QHD LCD System*,” IEEE Transactions on Circuits and Systems for Video Technology, 2013 (submitted) [[PDF](#)]

**Fu-Chen Chen**, Yung-Lin Huang, Shao-Yi Chien, “*Hardware-efficient true motion estimator based on Markov Random Field motion vector correction*,” VLSI-DAT, 2012 [[PDF](#)]

# Skills and Languages

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## Programming Language

Proficient in: C/C++, Verilog

Familiar with: C#, MATLAB, Python

Ever used: Java, HTML, JavaScript, MySQL

## Library

OpenCV, OpenMP

## Platform

Windows(XP/7), UNIX

## Specialty

Primary: Computer vision, Machine learning, Video processing, True motion estimation

Familiar with: Data compression, Codec, Digital IC Design

## Speaking Language

English (Professional working proficiency), Chinese (native), Taiwanese (native)

# Professional Services

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## Teaching Assistant

(2009/9 - 2010/2)

Computer-aided VLSI System Design [EEE5022], National Taiwan University

## Teaching Assistant

(2008/9 - 2009/6)

Algorithm Design and Analysis [CSIE2136], National Taiwan University

# Selected Course Projects

<http://fcchen.cc/project.html>

## Tennis game design with image based visual effect

Spring 2009

Global motion estimation, Back ground extraction, Bayesian matting, Morphing, Image based rendering, OpenGL library

## Panorama image construction

Spring 2009

Harris corner detection, SIFT, K-D tree, RANSAC, Cylindrical Warping, Image blending

## 3D object insertion in video scene

Spring 2009

Structure from motion, Icarus calibration software, Blender 3D software

## Minimum Rectilinear Steiner Tree (MRST) Problem

Spring 2008

FDP algorithm, Iterated 1-stein, Refined Single Trunk Tree

Messenger program, 3D First-person shooting program, TCP/UDP protocol, MOGRE 3D engine, Blender 3D

## **Extracurricular Activities**

<http://fcchen.cc/video.html>

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### **Leadership**

#### ***PixArt Imageing Inc.***

2012 - The secretary-general of employee welfare committee

#### ***Nation Taiwan University***

2007 - The leader of photo capturing and editing department in EE Summer Camp

2007 - The host of video game contest - Super Puzzle Fighter in department of EE

2005 - The conductor of the a freshmen team in EE Freshmen camp

### **Video making**

#### ***Nation Taiwan University***

2009 - EE Graduate Dance

2007 - EE Night Show

2007 - EE Summer Camp

2006 - EE Night Show

#### ***Taipei CK High School***

2002 - Video Technique Course

### **Violin player and composer**

#### ***Nation Taiwan University***

2008 - EE Veteran Night

2007 - EE Concert

2007 - EE The Wall