

# Ming-Chang (Eric) Chiu

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## INTERESTS

My personal interests are in computer cognition, robotics, machine learning and high-performance computing. I am interested in understanding scene details, predicting possible outcomes (if dynamic) and also predicting human reaction. The best case is proposing an end-to-end model capable of accomplishing multiple tasks. In addition, an intelligent audio system is another picture in my dream.

## EDUCATION

**University of Southern California (USC)**, Los Angeles, California, USA

Master (M.S.) in Electrical Engineering

Aug 2016 – May 2018 (Expected)

- Areas of Specialty: Data Science, Digital Signal Processing

**National Tsing Hua University (NTHU)**, Hsinchu, Taiwan

Bachelor of Science (B.S.) in Electrical Engineering  
and Computer Science

Sep 2011 – Jun 2015

- Last 60 GPA: 4.05 / 4.30, Cumulative GPA: 3.82 / 4.30 (Excluding credits at University of Minnesota)

**University of Minnesota**, Twin-Cities, Minnesota, USA

Exchange Student in Computer Science and Engineering

Sep 2014 – Dec 2014

- Introduction to Intelligent Robotics (A), Advanced Programming Principles (A)
- Cumulative GPA: 4.0 / 4.0, 15 credits

**Tsinghua University**, Beijing, China

Summer Exchange Student in Computer Science

Aug 2012 – Sep 2012

## RESEARCH PROJECTS

**The World is Changing: Finding Changes on the Street**

Feb 2015 – Sep 2015

Under supervision of Prof. Min Sun, Visual Science Laboratory, NTHU

- Constructed image change detection model in MATLAB, successfully detected street view mismatches in Dash camera images with respect to preprocessed Google Street View (GFV)
- Applied RANSAC to re-outline the areas of mismatches in the original GFV images with accuracy outperforming baseline by 46%
- Devised a reusable manual labeling software and data types that recorded ground truth mismatch areas

**Re-scheduling Computing Job on Large-Scale System**

Jul 2013 – Aug 2014

Under supervision of Prof. Jerry Chou, Large-Scale System Architecture Laboratory, NTHU

- Applied Hadoop benchmark (HiBench) to test performance of processing different types of computing job on heterogenous cluster using Perl
- Designed testing environment settings using Linux BASH shell scripts and analytically found suitable disk for certain computing job types
- Applied machine learning algorithm on Linux resource usage to discern types of computing and then moved the data to either Hard Disk or Solid-State Disk to proceed

## ACADEMIC PROJECTS

**Movie Recommender**

Mar 2015 – Jun 2015

- Implemented and tested 3 collaborative filtering algorithms in Python and utilized MovieLens database to recommend movies
- Back-end analysis system deployed on AWS EC2, enabling the recommender to regularly update recommendations by checking new user preferences
- Created front-end webpage using jQuery, AJAX and Bootstrap

**Dictionary Search Engine** [Github](#)

Feb 2015 – Apr 2015

- Implemented PageRank algorithm for Apache Hadoop in JAVA and constructed a search engine which prioritizes relevant links
- Coded under scalable MapReduce framework on 8-node distributed computers allowing massive dataset to be processed
- Devised file system database retrieval function by applying Apache Hbase and Hive

**Autonomous Robotic Convoy System Design** [Github](#)

Oct 2014 – Dec 2014

- Proposed an algorithm that allows rovers to move toward one and only one target even when doing sharp turns using C++
- Utilized ultrasonic sensor to detect object distances and translated information into 2D surface using gnuplot
- Devised a paradigm to discern the original moving object while multiple static and moving objects are present

**Remote Control Car** [Github](#)

Apr 2014 – Jun 2014

- Designed flip-flop circuit that controls electric current and connects power, RF dongle, and embedded controller; manipulated controller behavior in Python
- Developed a Smart Phone application in JAVA using Bluetooth Low Energy to transmit control signal

**Midnight Radio: A Shared Online Radio Platform** [Github](#)

Apr 2014 – Jun 2014

- Developed front-end webpages using jQuery, AJAX and Bootstrap featuring user/administrator portal, chatting room, music play list, etc.
- Built back-end user upload system, administrator supervision function, and music information database in PHP and MySQL

**One-on-one Chinese Chess Game**

Aug 2012 – Sep 2012

- Designed graphical user interface and implemented the rules of the game with Qt (C++)
- Applied C++ Internet thread programming which allows users to play through Internet connection

<b>PUBLICATIONS</b>	K.-T. Chen, M.-C. Chiu, F.-E. Wang, J.-T. Lin, F.-H. Chan, Min Sun, “The World is Changing: Finding Changes on the Street,” submitted to <i>Asian Conference on Computer Vision (ACCV) 2016</i>	
<b>PROFESSIONAL EXPERIENCE</b>	<b>Broadsound Corporation</b> , Jupei City, Hsinchu, Taiwan. Intern <ul style="list-style-type: none"> <li>Completed full-stack production process of a Wind Gauge, including product design, supply chain analysis, assembling, calibrating, testing, and exporting</li> <li>Developed part of their all-in-one ProCheck software (featuring ultrasound probe calibration, testing, and data collection) which became a major revenue source</li> <li>Final profit generation: About \$100K</li> </ul>	Jul 2013 – Sep 2013
<b>TECHNICAL SKILLS</b>	Languages: C/C++, MATLAB, Ocaml, Java, Python, HTML/CSS, PHP, SQL, BASH, Javascript, $\LaTeX$ , Technologies: Hadoop, AWS, Git, jQuery, Linux, Spark	
<b>ACADEMIC HONORS &amp; AWARDS</b>	Selected as the only Honorary Member of Phi Tau Phi Scholastic Society in the department	2015
	Awarded Excellent Study Group Award, NTHU	2015
	Awarded National Tsing Hua University International Exchange Scholarship; Amount: \$10K	2014
<b>CAMPUS ACTIVITIES</b>	<b>NTHU Orchestra</b> , National Tsing Hua University Vice President	Jul 2012 – Jun 2013
	<b>Student Council</b> , National Tsing Hua University Counselor	Jul 2012 – Jun 2013
<b>OTHER WORK EXPERIENCE</b>	<b>Republic Of China (Taiwan) Army</b> Compulsory Military Service	Sep 2015 – Aug 2016
<b>REFERENCES</b>	<p><b>Professor Min Sun</b> National Tsing Hua University Department of Electrical Engineering Email: sunmin@ee.nthu.edu.tw</p> <p><b>Professor Jerry Chou</b> National Tsing Hua University Department of Computer Science Email: jchou@cs.nthu.edu.tw</p> <p><b>Professor Stergios Roumeliotis</b> University of Minnesota, Twin Cities Department of Computer Science and Engineering Email: stergios@cs.umn.edu</p>	