

Ming-Chang (Eric) Chiu

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INTERESTS

My personal interest is at the intersection of computer cognition, machine learning and high-performance computing

EDUCATION

University of Southern California (USC) Los Angeles, CA

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 Computer Science & Electrical Engineering Sep 2011 – Jun 2015

• Last 60 GPA: 4.05 / 4.30, Cumulative GPA: 3.82 / 4.30

University of Minnesota Twin-Cities, MN

Exchange Student in Computer Science and Engineering Fall 2014

• Cumulative GPA: 4.0 / 4.0, 15 credits

Tsinghua University Beijing, China

Summer Exchange Student in Computer Science Summer 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 (GVF) to provide updated information
- Applied RANSAC to re-outline the areas of mismatches in the original GVF images with accuracy outperforming baseline by 46%
- Devised a reusable manual labeling software and data types that recorded ground truth mismatch areas to help data collection

Re-scheduling Computing Job on Large-Scale System Jul 2013 – Aug 2014

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

- Automated Hadoop benchmark (HiBench) to test performance of processing different types of computing job on heterogeneous 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 and so reduce power consumption

PROJECTS

Movie Recommender Mar 2015 – Jun 2015

- Implemented and tested 3 collaborative filtering algorithms in Python and utilized MovieLens dataset 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 for visual effect

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 for dictionary content retrieval 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 as human computer interface
- 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 smartphone 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

RELATED COURSEWORK

Mathematical Pattern Recognition, Deep Learning and Computational Intelligence, Simulation Methods for Stochastic Systems, Cloud Programming (A), Computer Graphics (A), Scientific Computing (A), Numerical Analysis (A), Operating System (A), Web Technologies (A), Software Engineering (A)

PUBLICATIONS	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>	
WORK EXPERIENCE	Republic Of China (Taiwan) Army Led physical and mental training sessions and proposed smartphone usage regulations Broadsound Corporation Intern	Sep 2015 – Aug 2016 Hsinchu, Taiwan Jul 2013 – Sep 2013
	<ul style="list-style-type: none"> • Produced product Wind Gauge, including product design, supply chain analysis, assembling, calibrating, testing, and exporting • Developed part of all-in-one ProCheck software in C (featuring ultrasound probe calibration, testing, and data collection) which became a major revenue source • Generated about \$100K with teammates 	
SKILLS	Languages: C/C++, MATLAB, Ocaml, Java, Python, HTML/CSS, PHP, SQL, BASH, Javascript Technologies: Hadoop, AWS, Git, jQuery, Linux, Spark	
HONORS & AWARDS	Selected as the only Honorary Member of Phi Tau Phi Scholastic Society in the department Awarded Excellent Study Group Award, NTHU Awarded National Tsing Hua University International Exchange Scholarship; Amount: \$10K	2015 2015 2014
LEADERSHIP	NTHU Orchestra , National Tsing Hua University Vice President NTHU Student Council , National Tsing Hua University Counselor	Jul 2012 – Jun 2013 Jul 2012 – Jun 2013
REFERENCES	<p>Professor Min Sun National Tsing Hua University Department of Electrical Engineering Email: sunmin@ee.nthu.edu.tw</p> <p>Professor Jerry Chou National Tsing Hua University Department of Computer Science Email: jchou@cs.nthu.edu.tw</p> <p>Professor Stergios Roumeliotis University of Minnesota, Twin Cities Department of Computer Science and Engineering Email: stergios@cs.umn.edu</p>	