# Ping-Chia (Amber) Tsai

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## EDUCATION

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|---|---|
| University of Washington | Seattle, WA |
| Doctor of Philosophy Student in Electrical Engineering | Expected June 2019 |

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| National Taiwan University (NTU) | Taipei, Taiwan |
| Bachelor of Science in Electrical Engineering | June 2014 |

- Overall GPA: 3.85/4.0; Major GPA: 3.88/4.0

Related Courses: Data Structure and Programming, Mobile Phone Programming, The Design and Analysis of Algorithms, Introduction to Computer Networks, Advanced Digital Signal Processing, Engineering Mathematics – Linear Algebra, Complex Variable, Advanced Statistics (I), Advanced Statistics (II), Strategic Management

Special Projects:

**Petri Net GUI Development for Aquarium**, Klavins Lab, October 2014 – present

- Build GUI for Aquarium, a software for helping reproduce experimental results in synthetic biology by representing wetlab protocols as computer language and keeping track on the processes

**Music Recommendation System**, Multimedia Processing and Communication Lab, July 2013 – June 2014

- Developed a novelty-based music recommendation system which provides novel and fond music to users
- Considered not only users' taste but also artists' popularity to help promote new talent in music society
- Publication: Ning Lin, Ping-Chia Tsai, and Homer H. Chen, "Music Recommendation Based on Artist Novelty and Similarity," submitted to *2014 IEEE International Workshop on Multimedia Signal Processing* (*MMSP*).

**Gaze Tracking**, Image and Vision Lab, September 2013 – June 2014

- Developed methods to further improve the precision of gaze tracking
- Applied gaze tracking technique to interactive multimedia, education, and business

**Mind Map**, Mobile Phone Programming, Fall 2013

- Developed an iOS app (to serve as a product prototype) by which participants can record and organize their thoughts or flow of minds during brainstorming
- Learned the basic knowledge on human-computer interaction and how to create a mobile phone app

**Simulation of Low-Density Parity-Check (LDPC) Code**, Electrical Engineering Lab, Spring 2013

- Simulated the LDPC code used in 802.11n by encoding incoming signals by multiplication with a large-scale sparse matrix
- Learned how the communication system works in real world and deal with a large amount of data

**Functionally Reduced And-Inverter Graph (FRAIG)**, Data Structure and Programming, Fall 2012

- Wrote a C/C++ program to parse digital circuits described in the AIGER format
- Provided optimization functions to reduce the circuit size and simulation time by finding functionally equivalent candidate (FEC) pairs
- Learned how to model, optimize, and simulate digital circuits to verify their correctness in short time

## WORK EXPERIENCE

**Developer Intern**, **Cardinal Blue**, Taipei, Taiwan                    September 2013 – June 2014
- Analyzed users' feedback of PicCollage, a photo app with over 60 million downloads
- Developed statistical algorithms to interpret the data of users' behavior
- Making suggestions to some specific functions to further improve users' preference to the app

## SKILLS

Programming Proficiencies: C/C++, Matlab, Python, Objective-C, Ruby on Rails

Tools: Github, Heroku, Last.fm API

Languages: Mandarin Chinese (native), Taiwanese (fluent), English (fluent), German (beginner)

## PUBLICATIONS

[1] Ning Lin, Ping-Chia Tsai, and Homer H. Chen, "Music Recommendation Based on Artist Novelty and Similarity," submitted to 2014 IEEE International Workshop on Multimedia Signal Processing (MMSP).

[2] Ping-Chia Tsai, Yan-Chun Chen, Jhao-Ting Chen, and Mike Y. Chen, "Mind Map," Poster Presentation, National Taiwan University, 2013.

## HONORS & AWARD

Mayor's Award, Kaohsiung First Girls' High School, Kaohsiung, Taiwan                    June 2010
- Awarded by Kaohsiung City Government to No. 1 students graduated from each high school

Admission to Department of Electrical Engineering, National Taiwan University                    April 2010
- The only student recommended by Kaohsiung First Girls' High School without taking the nationwide College Entrance Examination

Honorable Mention, Kaohsiung City Science Academic Contest – Chemistry                    November 2009
- Awarded by Kaohsiung City Government with honor in written test and experiment

## ACTIVITIES

Active Member, Society of Women Engineers, October 2014 – present

Instructor and Activity Planner, Electrical Engineering Camp, National Taiwan University, July 2011, 2012, 2013

Instructor and Fundraiser, Electrical Engineering Orientation Camp, National Taiwan University, August 2011, 2012

Dancer and Fundraiser, Pop Dance Club, National Taiwan University, July 2012 – June 2013