

## EDUCATION

**National Taiwan University, Taipei, Taiwan**

B.S. of Computer Science and Information Engineering

September 2012 - July 2016

M.S. of Computer Science and Information Engineering

September 2016 - July 2018

## SKILLS

- Proficient
  - Python programming.
  - Machine learning algorithms and applications.
  - Data-intensive applications.
- Intermediate
  - C/C++ programing.
  - Document-oriented databases, such as MongoDB.
  - Build and maintain Restful API and GraphQL API.
  - Distributed computing with Apache Spark.
- With Primary Knowledge
  - CICD: Jenkins, Docker, Kubernetes.
  - Relation-oriented databases such as PostgreSQL and MySQL.
  - Object-oriented programming using Java, Android.

## WORKING EXPERIENCE

**Yahoo, Taipei, Taiwan**

July 2017 - August 2017

Software Engineer Intern.

- Delivered a successful framework enhancing searching user experience within two month in Yahoo Global Search Team.
- Implement cluster-computing machine learning algorithms using Apache Spark.

**Appier, Taipei, Taiwan**

January 2019 - November 2019

Backend Engineer.

- Maintain legacy systems.
- Build and optimize a data-intensive api server with graphQL.

**National Taiwan University, Taipei, Taiwan**

December 2019 - Current

Research assistant.

- Co-work with Central Weather Bureau to improve operational forecasting procedure in tropical cyclone intensity estimation.
- Extend my master thesis to be more complete as a system, covering more aspect of tropical cyclone forecasting.

## PUBLICATION

**Rotation-Blended CNNs on a New Open Dataset for Tropical Cyclone Image-to-intensity Regression**

*KDD 2018*

**Boyo Chen, Buo-Fu Chen, Hsuan-Tien Lin**

- Carefully demonstrated several critical properties of TC intensity estimation task.
- Adapted classical CNN structure to propose a innovative model with promising performance.
- Organized a new dataset of TC images for other fellow researchers.

**Estimating Tropical Cyclone Intensity by Satellite Imagery Utilizing Convolutional Neural Networks**

Buo-Fu Chen, **Boyo Chen**, Hsuan-Tien Lin, Russell L. Elsberry  
*Weather and Forecasting April 2019, Vol. 34, No. 2*

- Refine the conclusion from the previous work and publish the improvement to Atmospheric scientists.

**Real-time Tropical Cyclone Intensity Estimation by Handling Temporally Heterogeneous Satellite Data**

*Under review of AAAI 2021*

**Boyo Chen**, Buo-Fu Chen, Yun-Nung Chen

- Use Generative Adversarial Network to handle missing data.
- Repair damaged visible light channel images which are collected during the night.
- Improve the estimating frequency of TC intensity from **1 per 3hr** to **1 per 15min**.

**CNN Profiler on Polar Coordinate Images for Tropical Cyclone Structure Analysis**

**Boyo Chen**, Buo-Fu Chen, Chun-Min Hsiao

*Under review of AAAI 2021*

- According to a TC's rotational and spiral natures, developed a specialized convolutional model on polar-coordinates.
- Analyze the TC structure profile, consider not only intensity but also size of a TC, which is a barely developed yet important topic.
- Organized a new dataset of TC images for other fellow researchers.

**RESEARCH EXPERIENCE**

**2015 IEEE Signal Processing Cup - Team MiRAHEALTH**

October 2014 - January 2015

Work as a member in a two-man team.

- Predicting heart rate base on noisy signals collected from wrist devices.
- Designed a sequence learning framework mainly using support vector machine.

**3D printing project of Ministry of Science and Technology**

February 2015 - June 2015

Work as a project member in a three-man sub-team.

- Were responsible for sketch-based 3D model retrieval.
- Designed a Siamese convolution neural network frame work base on sketch features and 3D object features.

**National Taiwan University, Taipei, Taiwan**

June 2016 - July 2018

Research assistant of Professor Hsuan-Tien Lin in *Computational Learning Lab*

- Devote to improving recent deep learning structures and learning their theoretical foundations.

**Knowledge Discovery and Data Mining Cup 2017**

March 2017 - June 2017

Member of NTU (National Taiwan University) team

- Predicting traffic volume base on highway traffic data.

**OTHER EXPERIENCE**

**National Taiwan University, Taipei, Taiwan**

Teaching assistant of Professor Hsuan-Tien Lin

- Machine Learning Foundations, 2016 fall About 100 students.
- Machine Learning Techniques, 2017 spring About 130 students.
- Machine Learning Foundations, 2017 fall About 260 students.
- Machine Learning Techniques, 2018 spring About 200 students.
  - Held 1+ TA hour weekly and actively discussed course materials with students.
  - Spent 2+ hour per week grading homework sets.