

# TZU-HSIN YANG

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 <https://zixinyang.github.io/>

## Research Interests

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Bayesian Inference, Deep Probabilistic Models, Uncertainty Estimation in Deep Learning, Reinforcement Learning

## Education

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**National Cheng Kung University, Tainan, Taiwan**

Jul. 2018

*M.Sc in Computer and Communication Engineering, Supervised by Jen-Wei Huang*

Overall GPA: 4/4.3

**Thesis:** DNA: General Deterministic Network Adaptive Framework for Multi-Round Multi-Party Influence Maximization.

**National Chiao Tung University, Hsinchu, Taiwan**

Jun. 2016

*B.Sc in Electrical and Computer Engineering*

Overall GPA: 3.1/4.3

## Work Experience

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**Data Scientist, KKBOX**

Jun. 2019 – Present

- User Behavior Analysis
  - Churn Prediction: *User behavior insight discovery / Churn user prediction with boosting methods*
  - Subscription Prediction: *Time series analysis with ARIMA / Modeling user journeys via semantic embeddings*
- Music Recommendation system
  - Seed songs selection: *Personalized song prediction*

**Deep Learning Scientist and Bioinformatician, Insilico Medicine**

Aug. 2018 – May. 2019

- Molecules Generation: *Development of generative models to generate potential valid molecules*
- MRI Brain Image Analysis: *Development of Unet model to segment images*

**iOS developer, National Cheng Kung University, Main Library**

Aug. 2017 – Jun. 2018

- Development of a mobile library app

**Teaching Assistant, National Cheng Kung University, Department of Electrical Engineering**

Sep. 2016 – Jun. 2017

- Teaching assistant for CS101 (Introduction to Computers) (C++)

## Publications

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**DNA: General Deterministic Network Adaptive Framework for Multi-Round Multi-Party Influence**

**Maximization.**, accepted paper in *The 5th IEEE International Conference on Data Science and Advanced Analytics* Oct. 2018

- **First author:** generate node-selection policies to maximize influence on social network in the long term with graph mining and reinforcement learning methods

## Invited Talk

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IEEE International Conference on Data Science and Advanced Analytics (DSAA), [\[Slide\]](#)

Oct. 2018

## Projects

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- COVID19 Global Forecasting**, *Kaggle Competition mainly held by The White House OSTP* Mar. 2020
- Forecast confirmed cases and fatalities between March 25 and April 22 by region
    - Using vector autoregressive moving average model (VARIMA) to predict regional values simultaneously
    - Top 13% in the competition
- MolHack: Apply deep learning to speedup drug validation**, *Kaggle Competition held by Insilico Medicine* Apr. 2018 – May. 2018
- Given ligand-pharmacophore pairs, predict the stability of the complex
    - Applying a regressor based on deep neural network on well-preprocessed data
    - Won 2nd place in the competition
- KKBOX Data Game: TV Show Recommendation**, *Kaggle Competition held by KKBOX* Jun. 2017
- Design an algorithm to predict what users will watch next
    - Exploratory data analysis / Linear regression
- Social Relationship inference from Urban Footprint**, *National Cheng Kung University* Sep. 2016 – Jan. 2017
- Design an algorithm to predict whether people are friends on social media with users' check-in data
    - User and behavior similarity estimation
- Mining Geo-Social Services for Optimal Location Placement**, *National Cheng Kung University* Sep. 2016 – Jan. 2017
- Design an algorithm to rank top 20 locations for hotels and theaters placement
    - Hill climbing optimization with NDCG ranking score
- Energy Consumption Analysis and Prediction for Household Planning**, *National Cheng Kung University* Sep. 2016 – Jan. 2017
- Design an algorithm to predict a household electricity consumption
    - Feature selection with random forest and linear regression modeling

## Programming Languages

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PYTHON, C++, R, SCALA, SQL, HTML, CSS, JAVASCRIPT, MATLAB, SWIFT, MONGODB

## Certificate

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**TOEFL iBT Scores:** 96 (R28, L20, S23, W25)  
**GRE Scores:** 311 (V144, Q167, AWA3.0)  
**Microsoft Certified:** Azure Fundamentals

## Relevant Coursework

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**University courses:** Linear Algebra, Differential Equation, Probability, Intelligent Data Analysis  
**Online courses:** ML, DS and DL with Python (Udemy), Bayesian Inference (Coursera)

## References

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- Research Advisor** **Jen-Wei Huang, Ph.D.**,  
Professor, National Cheng Kung University, Taiwan  
**Email:** jwhuang@mail.ncku.edu.tw
- Course Instructor** **Hsun-Ping Hsieh, Ph.D.**,  
Professor, National Cheng Kung University, Taiwan  
**Email:** hphsieh@amazon.com
- Research Mentor** **Emmanuel Salawu, Ph.D.**,  
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