TZU-HSIN YANG

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Research Interests

Causal Inference, Interpretable Machine Learning, Reinforcement Learning, Game Theory in AI, Robotics

Education

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

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*

· Sentiment Analysis System
- Crawler Pipeline: *CI/CD pipeline using GitLab and Jenkins*
- Sentiment Model: *Development of deep learning models to classify sentiment among positive, negative and neutral*

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

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

IEEE International Conference on Data Science and Advanced Analytics (DSAA), *[Slide]* *Oct. 2018*

Projects

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 autoregessive 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

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

Certificate

TOEFL iBT Scores: 96 (R28, L20, S23, W25)

GRE Scores: 311 (V144, Q167, AWA3.0)

Microsoft Certified: Azure Fundamentals

Relevant Coursework

University courses: Linear Algebra, Differential Equation, Probability, Intelligent Data Analysis
Online courses: ML, DS and DL with Python (Udemy), Statistics with R Capstone (Coursera)

References

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.**,
Research Scientist, Amazon Web Services, Washington, D.C., USA
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