TZU-HSIN YANG

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Research Interests

Theory: Probabilistic Inference, Game Theory
Applied Science: Computer Vision, Robotics, Recommendation Systems

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 Inc.* *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 and predict ages*

Part time 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

Skills

Programming Languages

- **Familiar with**: PYTHON, C++, R, SCALA, SQL
- **Experience with**: HTML, CSS, JAVASCRIPT, MATLAB, SWIFT, MONGODB

Data Science Techniques

- **Machine Learning**: Reinforcement Learning, CNN / RNN-based models, Generative models
- **Python Packages**: Pytorch, Keras, TensorFlow, Numpy, Scipy, Pandas, Matplotlib

Deployment Pipeline

- **Experience with**: GITLAB, JENKINS, DOCKER, KUBERNETES

Language Qualification

- **TOEFL**: 96/120 (R28, L20, S23, W25)

Projects

COVID19 Global Forecasting , *Kaggle Competition mainly held by The White House OSPT* *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*

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

References

Research Advisor **Jen-Wei Huang**, **Professor**,
National Cheng Kung University, Taiwan Homepage

Course Instructor **Hsun-Ping Hsieh**, **Professor**,
National Cheng Kung University, Taiwan Homepage

Research Mentor **Emmanuel Salawu**, **Research Scientist**,
Amazon Web Services, Washington, D.C., USA Homepage