TZU-HSIN YANG

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Research Interests

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

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

Research Assistant, *Academia Sinica* *Oct. 2020 (Expected)*
Data Scientist, *KKBOX* *Jun. 2019 – Aug. 2020*

· 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*
· Public Opinion System
  - Crawler Pipeline: *CI/CD pipeline using GitLab and Jenkins*
  - NER Model: *Using Chinese NLP tools (CkipTagger) for named entity recognition*

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 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 using graph mining and reinforcement learning methods

LSTMEnsembler: A LSTM-based Ensemble Framework for Predicting the Success of Mediation Requests Using Case Properties and Textual Information., *submitted to ACM Transactions on the Web* *Sep. 2020*

· **Third author**: predict the success of mediation cases based on the case information and textual descriptions using LSTM-based framework

Invited Talk

IEEE International Conference on Data Science and Advanced Analytics (DSAA), *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 MedicineApr. 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: 107 (R29, L27, S23, W28)

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), Bayesian Inference (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.**,
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