Pei-Chen (Lorna) Yen

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SUMMARY

A Graduate student pursuing a Master's in Information Technology with a multidisciplinary background in Artificial Intelligence(AI) and business analytics with over five years of industrial and research experience. Extensive experience in route optimization algorithm and system development, agent-based modeling in customer behavior, AI implementation for a board game, spatial analysis, and industrial analysis. Aspiring to a challenging research opportunity where my interest is in the fields of decision-making, computational modeling, and optimization in operation research for real-world problems.

RESEARCH AND WORK EXPERIENCE

Graduate Research Assistant Institute of Statistical Science, Academia Sinica, Taipei, Taiwan

Advisor: Prof. Frederick Kin Hing Phoa *Full Time, Mar 2019 – Jan 2022*

- **Transfer Technology Invention: The AIoT Integrated Points-to-Route Optimization (AIoT-iPRO) System for Logistics and Delivery Services**

  Responsibilities and Achievements
  - Invented a map-to-network mapping algorithm based on real maps for distance matrix generation.
  - Developed a PSO-style route optimization algorithm that focuses on the problems in discrete domains to address the Traveling Salesman Problem.
  - Improved the route optimization algorithm performance for real-world applications; current results outperform the ACO method for small-scale TSP problems.
  - Prototyped the route optimization solution via Flask framework and Docker: Package the algorithm programming, set up user interface, draw routing results via Google Maps API Service, and dockize with Postgres and Nginx-uWSGI on Ubuntu system.
  - Published Transfer Technology Innovation (Docket Number: 06T-1090623).
- **Transfer Technology Custom Development: Routing system for multi-trucks with time window constraint for a leading food company in Taiwan**
  - Defined company's routing problem and search related publications on multi-constrained vehicle routing problems.
  - Designed a two-stage model for vehicle routing issues with time windows which is based on "Cluster first, Route Optimization second".
  - Built customized scheduling and routing application for additional constraints such as driver work schedules and super customers; provide scheduling results with table and visualization map.

Investment Banking Analyst Horizon Securities Co., Ltd., Taipei, Taiwan

Responsibilities and Achievements *Full Time, Jul 2014 – Sep 2017*

- Conducted analysis and due diligence as a major book-runner for the Uniflex Technology Inc. IPO (TWSE: 3321).
- Analyzed 5+ companies in electronics and cosmetics industries from financial, operational, and industry perspectives to create memorandum for internal committees.
- Worked with associate to develop 30+ presentations and pitch files for client executives and boards for providing financial and strategic advice.

PUBLICATION

Yen, Pei-Chen and Frederick Kin Hing Phoa (2021). Traveling Salesman Problem via Swarm Intelligence. *Advances in Swarm Intelligence* Springer Volume **12689**, 106-115.

RELEVANT PROJECT WORK

Investigation of the Customer Behavior between Online Delivery Service and Physical Store Shopping

Subject Research Project, Melbourne, AU *Sep 2022 - Oct 2022*

- Surveyed literatures in the customer behavior field, proposed and designed a customer choice model with physical and online store channel based on Agent-based Modeling framework and ODD protocol.
- Simulated the customer behaviors based on proposed model under several simple scenarios by manipulating parameters of store capacity, shopping distance, and delivery cost to investigate the complex emergency of customer choices.

An Artificial Agent for Reversi (Othello) Game

Subject Teamed Project, Melbourne, AU *Sep 2022 - Oct 2022*

- Mapped the Reversi game's decision of movement selection to multi-armed bandit problem, designed a game agent

structured as Monte Carol Search Tree combined with a modified Upper Confidence Bound bandit algorithms (UCB1) for movement selection and simulation.
- Designed the second classic-search agent based on the Breadth-first search method with the Roxanne Priority heuristic, and applied it as our team's benchmark for agent performances' comparison.

Discovering the Correlation of Natural Factors to the Historical Bushfires in Victoria

Subject Teamed Research Project, Melbourne, AU *Aug 2022 - Oct 2022*

- Surveyed literatures about natural factors contributed to the bushfire occurrence in Australia.
- Participated in the spatial data processing using ArcGIS Pro, in the analysis of bushfire occurrence associated with the selected factors using linear regression models, Frequency Ratio, and Logistic regression models.

EDUCATION

The University of Melbourne Melbourne, Australia

Master of Information Technology, Artificial Intelligence Specialization *Feb 2022 − Present*

- **Core Electives:**
  - Computational Modelling and Simulation (COMP90083), AI Planning for Autonomy (COMP90054), Foundations of Spatial Information (GEOM90008), Advanced Database Systems (COMP90050)

Fu Jen Catholic University - Single subject study (Assessed mode) Taipei, Taiwan

Bachelor's Program in Software Engineering and Digital Innovation Application

- **Coursework:** C Language *Feb 2021 − June 2021*

Department of Mathematics *Sep 2017 − Jane 2018*

- **Coursework:** Calculus I, Calculus II, Linear Algebra I, Linear Algebra II, Mathematical Statistics I, Mathematical Statistics II, Probability Theory
- **Overall Grade:** 86.74/100

National Taipei University of Technology - Single subject study (Assessed mode) Taipei, Taiwan

Department of Electronic Engineering *Sep 2019 − Jan 2020*

- **Coursework:** Discrete Mathematics

National Sun Yat-sen University Kaohsiung, Taiwan

Master of Business Administration in Finance, Advisor: Prof. Der-ming Lieu *Sep 2012 − Jane 2014*

- **Coursework:** Valuation Methods, Accounting, Security Market Microstructures, Financial Statement Analysis, Mergers and Acquisitions
- **Thesis**: Empirical Analysis of Big Data Using EBO Model- Application of XBRL Data in Taiwan's Market
- **Achievement**: First prize in 3rd XBRL Software Design Competition - Investment Ratings System

Fu Jen Catholic University Taipei, Taiwan

B.Sc. in Business Administration in Finance and International Business *Sep 2007 − Jane 2011*

- **Extracurricular Activities:**
  - Department Women's Volleyball Team Captain: Led 30 students in volleyball training and intercollegiate competitions.

HONORS&AWARDS

Melbourne Graduate Scholarship

Faculty of Engineering and Information Technology - University of Melbourne *Nov 2021*

This scholarship provides a one-off tuition fee remission of $10,000.

3rd XBRL Software Design Competition - Investment Ratings System- First prize

Project Designer - EBO Valuation Model Building *Jan 2014 − Jul 2014*

- Designed an innovative security selection model with the EBO valuation method based on public information, including all listed companies, and fundamental corporate analysis.
- Collaborated cross-functionally with four IT professionals who led the design, integration and deployment of the designed EBO valuation model into the investment rating system.

SKILLS AND HOBBIES

- Skilled in Python, familiar with Java, experienced in R and C language.
- Familiar with MySQL, PostgreSQL, Docker, Bash, and GIT.
- Trekking, cooking, baking, drawing, gaming.