Tonglin YAN

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EDUCATION

Paris-Saclay University Paris, France

PhD in Psychology *10/2023 – present*

Advised by Prof. David Rudrauf, co-supervised by Prof. Alain Finkel and Prof. Grégoire Sergeant-Perthuis

Thesis title: Integration of advanced multimodal machine learning models in the Projective Consciousness Model for the study of non-verbal and verbal social behaviors in virtual reality.

University of Rouen Normandy Rouen, France

M.S. in Data Science and Engineering *09/2021 – 09/2022*

Co-accredited with the University of Rouen

Courses: Deep Learning, Reinforcement Learning, Sparse Coding, Fusion and Multimodality, Image Retrieval, Text Analysis and Information Retrieval, Data Compression, Sequential Data Analysis.

INSA Rouen Normandie (Institut national des Sciences Appliquées Rouen Normandie) **Rouen, France**

Engineering degree in Mathematical and Software Engineering *09/2017 – 09/2022*

Courses: Parallel Computing, Multi-Agent System, AI Problem Solving, Virtual Reality, Machine Learning, Signal, Probability and Statistics, Optimisation, Partial Differential Equation, object-oriented programming, database, language C++/C.

PERFESSIONAL EXPERIENCE

GuanYun Technology *02/2023 – 06/2023*

Algorithm engineer

- Development of a motion capture system based on 9-axis inertial measurement unit.
- Simulation of human mouvement with Unity3D.

Sorbonne University *03/2022 – 09/2022*

Research intern at the ISIR laboratory

- Objective: Design a pipeline for constructing a dataset in the field of biology.
- Library research on language models and question-answering systems.
- Fine-tuning of BERT and T5 models for the specific task and performance evaluation.
- Construction and evaluation of a pipeline.

New York University *06/2021 – 09/2021*

Machine learning intern

- Goal: Prediction of animal trajectories (ants and birds).
- Data collection, cleaning, and imputation using linear regression.
- Feature extraction, sequential data analysis (random forest), and hyperparameter tuning.

Deloitte China *07/2020 – 09/2020*

PTA in Consulting Department

- Case study on "Markdown (promotion)": Responsible for gathering reports on commercial activity markdown, and preparing a slide to explain the definition, the classification of the markdown, the method to assess the impact of a promotional activity, and planning the most appropriate promotional activities for clients.
- Data Governance Case-Study: Investigated the definition, framework, and methodology of data governance. Researched the maturity assessment model, which is used to build a maintenance plan.

PROJECT AND RESEARCH EXPERIENCE

AI Problem Solving Project *01/2022 – 02/2022*

Swarm intelligence applied in image segmentation

- Studied the swarm intelligence algorithme, in particular social spiders algorithm, and implemented in python.
- Applied social spiders algorithm to segmentation of hair and face in passport photos.

Virtual Reality Project 01/2022 - 02/2022

Development of “ESCAPE” game using Unity3D and blender

- Construction des meubles dans la scène avec blender.
- Animations des objets, interaction entre le personnage et l’environnement dans unity 3D avec script C#.

Graduation Project *09/2021 – 02/2022*

Recommendation System

- Literature on recommendation system algorithms, particularly collaborative filtering and content-based.
- Data collection of POIs, including name, position, type, rating and opening hours by using Google APIs.
- Implementation of a recommendation system with kernel matrix factorization in Python, which solves the limitation cold-start.

Semester Project *03/2021 – 05/2021*

Optimisation design of circuit network configuration

- Solving quadratic function optimization with linear constraints.
- Solving integer linear programming.
- Optimization using eigenvectors.

Software Engineering and C++ Project *03/2021 – 05/2021*

Training a racing car with generic-algorithm-optimized BP network

- Lead team members to design UML for the entire project, including Class Diagram, Use Case Diagram, Sequence Diagram, and Component Diagram.
- Responsible for implementing the back propagation neural network on car instance, documenting the code with Doxygen software, as well as doing unit testing and integration testing for the code.

Semester Project 10/2020 - 01/2021

Gomoku (Implementation of the Min-Max Algorithm)

- Study on the Min-Max algorithm and alpha-beta pruning.
- Development of the human-machine combat Gomoku game in Java.

SKILLS AND INTERESTS

- Operating system: Linux, MacOS, Windows 10.
- Programming languages: Python (PyTorch, TensorFlow2, Hugging Face, sklearn, CPLEX), Java, C++, R, Fortran, MySQL.
- Experience in 3D modeling: blender, unity 3D.
- Languages: Mandarin; French: B2; English: TOEIC 880/990; Japanese: beginner.
- Interests: yoga (China-India Yoga Institute yoga instructor certification), Chinese Calligraphy, Travelling.