YUNZHE WANG

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EDUCATION

Columbia University New York, NY
M.S. Computer Science, Machine Learning Track, **GPA: 3.96** Aug 2021 - May 2023
- Graduate Teaching Assistant for Applied Computer Vision and Natural Language Processing

University of Southern California Los Angeles, CA
B.S. Double Major in Applied Mathematics, Neuroscience, Minor in Computer Science, **GPA: 3.84** Aug 2017 - May 2021
- Phi Beta Kappa Honor Society, Magna Cum Laude, USC Academic Achievement Award, Dean's List

Relevant Coursework: Machine Learning, Unsupervised Learning, Artificial Intelligence, Natural Language Processing, Reinforcement Learning, Applied Computer Vision, Cognitive Neuroscience, Sensation and Perception, Brain Architecture, Neurobiology, Statistics, Probability Theory, Numerical Methods, Calculus, Software Development, Computer Networks, Blockchain, Databases, Data Structure, Algorithm Analysis, Advanced Algorithms

EXPERIENCE

Creative Machines Lab New York, NY
Graduate Student Researcher (Machine Learning) Sep 2021 - May 2023
- Conducted on 5+ ML research projects in Robotics, Multi-modal, Speech, and Time Series, supervised by Prof. Hod Lipson.
- Designed and implemented an end-to-end Transformer model that generates talking faces from speech, synchronizing lips and facial expressions for animatronic face robot.
- Harnessed Large Language Models such as GPT-4, Automatic Speech Recognition, and emotional text-to-speech synthesis to create a dialog pipeline for a face robot, achieving a seamless human-robot interaction experience with real-time conversation. Project interviewed by fox news.
- Led and developed a CNN-LSTM-based multitask time series classification model for robot morphology transfer learning.

USC Institute for Creative Technologies Los Angeles, CA
Student Researcher (Machine Learning) May 2020 - Aug 2021
- Conducted Machine Learning Research on Reinforcement Learning supervised by Dr. Volkan Ustun.
- Implemented 5 RL algorithms and linear programming solutions for route optimization tasks.
- Led and created a graph-based RL environment and data pipeline for DARPA ASIST SAR task, providing a foundation for RL experiments, visualization, and interfacing.
- Developed a sequential decision-making framework for solving multi-agent route optimization problems leveraging Graph Transformer and Reinforcement Learning techniques. Published research result in AAAI-FSS 2021.

Institute of Computing Technology, Chinese Academy of Science Beijing, China
Research Internship May 2019 - Aug 2019
- Conducted NLP research to optimize Chinese Part-of-Speech tagging by integrating rule-based expert systems, correcting errors made by Hidden Markov Models, and neural network techniques for improved accuracy and performance.

PROJECTS

trendemia.org: Research Trend Meta-Analysis Tool May 2023 – Present
- Bootstrapping AI-powered web application for scientific research trend analysis and data visualization.

GPT4-Enabled Automatic Product Labeling Mar 2023 - Apr 2023
- Prototyped an e-commerce luxury product labeler leveraging Computer Vision, GPT-4, and prompt-engineering.

Non-Profit Minecraft Community Server Jun 2018 – Present
- Founded and managed a non-profit Minecraft Community server, attracting 3000+ players through engaging gameplay.
- Oversaw server infrastructure, including cloud hosting, CDN setup, networking, and data and web management.

PUBLICATIONS

1. Hu, Y., Wang, Y., …, Lipson, H., (2023). Efficient Transfer Learning Across Robot Morphologies. ***CoRL 2023*** (Submitted)
2. Hu, Y., Wang, Y., …, Lipson, H., (2023). Lip synchronization for Animatronic Robot Face. ***Science Robotics*** (Preparation)
3. Hu, Y., Chen, B., Lin, J., Wang, Y., ..., Lipson, H., (2023). Human-Robot Facial Co-expression. ***Science Robotics*** (Submitted)
4. Wang, Y., Gurney, N., Zhou, J., Pynadath, D.V., Ustun, V. (2022). Route Optimization in Service of a Search and Rescue Artificial Social Intelligence Agent. ***AAAI-FSS 2021***. Lecture Notes in Computer Science, vol 13775. Springer, Cham.

SKILLS

Programming: Python, C++, MATLAB, HTML/CSS/JavaScript, SQL
Frameworks & Libraries: PyTorch, Tensorflow, Scikit-Learn, Matplotlib, Pandas, NumPy, nltk, librosa, NetworkX, OpenCV
Tools & Platforms: Git, Linux, AWS, GCP, Postman, LaTeX, Selenium, W&B, XGBoost, Hugging Face, Jupyter Notebook
Others: Stay current with latest AI/ML research, Bilingual in English and Chinese