PEIQI YU

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EDUCATION

Tsinghua University **2019 - 2023**
B.E. in Automation
GPA: 3.81/4.0
Major Courses: Fundamentals of Artificial Intelligence, Control Theory, Stochastic Process, Signal and System, Digital Image Processing, Numerical Analysis, Statistics, Data Structure

WORK EXPERIENCES

Short Term Scholar **2023**
Intelligent Control Lab, Carnegie Mellon Univeristy(CMU)
Advisor: Prof.Changliu Liu
Research Intern **2022-2023**
Learning & Neural Systems Group, Tsinghua University(THU)
Co-advisor: Prof.Yilin Mo & Prof.Yanan Sui
Research Intern **2021-2022**
Information Processing Institute, Tsinghua University(THU)
Advisor: Prof.Jiwen Lu

PUBLICATIONS

Recovering Realistic Details for Magnification Arbitrary Image Super-Resolution **2022**
IEEE Transactions on Image Processing
Cheng Ma, Peiqi Yu, Jiwen Lu and Jie Zhou

- **Main idea: Proposed implicit pixel flow and double constraint strategy to recover perceptually-pleasant details for magnification-arbitrary single image super-resolution.**
- **My contribution1: Proposed feature aggregation, designed confidence module and implemented main codes, achieving a SOTA infinite image super-resolution model.**
- **My contribution2: Conducted all comparison experiments and ablation studies to form Fig.2, Fig.4∼7, Fig.9∼10, Fig.13, TABLE I∼III.**

WORKING PAPERS

Hierarchical Intention-based Human Robot Interaction **2023**
Manuscript in Preparation
Peiqi Yu, Abulikemu Abuduweili, Ruixuan Liu and Changliu Liu

- **Main idea: Proposed a framework that allows robots to hierarchically recognize human intentions, decomposing the high-level intention into a series of lower-level actions and sub-tasks required for assembly task, enabling more natural and intuitive human-robot interactions.**
- **My contribution: Independently developed the whole algorithm pipeline for vision perception, recognition, planning and robot control.**

SELECTED RESEARCH EXPERIENCES

Transformer-based Bayesian Optimization **2022 - 2023**
Bachelor's Project, Tsinghua University
Supervisors: Professor Yilin Mo, Department of Automation, Tsinghua University
Professor Yanan Sui, School of Aerospace Engineering, Tsinghua University

- **Main idea and my contribution1:** Independently developed Transformer-based algorithm to perform Bayesian Optimization.
- **My contribution2:** Mathematically deducted analysis of physical properties of Bayesian Optimization and implemented them in Transformer.
- **My contribution3:** Conducted comparison experiments with SOTA models and improved the performance on few-shot learning by 80%.

Learning From the Wild: Video-based Robot Control System 2022

Module Developer, Tsinghua University

Supervisors: Professor Dorsa Sadigh, Department of Computer Science, Stanford University
Professor Yanan Sui, School of Aerospace Engineering, Tsinghua University

- **Main idea:** Developed deep RL algorithms for guiding virtual robots to learn human behavior from wild videos and mimic human actions.
- **My contribution1:** Developed similarity calculation module for video processing.
- **My contribution2:** Conducted analysis and compare the results with DVD, C3D models.

Wearable Sensor Based Intelligent Sleep Stage Detection 2021

Core Algorithm Developer, Beijing Academy of Blockchain and Edge Computing

Supervisor: Tianyu Feng, Beijing Academy of Blockchain and Edge Computing

- **My contribution1:** Analyzed mixed data collected by wearable devices (including heart rate, body temperature, and motion signal).
- **My contribution2:** Developed sleep-staging algorithms based on collected data using SVM, Random Forest and Neural Networks.

ACHIEVEMENTS

Academic excellence award 2020
Huang Yicong scholarship
Science&technology excellence Award 2021
School Management scholarship
Academic excellence award 2022
National Inspirational Scholarship

TECHNICAL SKILLS

Languages	Python, C++, C, Matlab, LaTeX
Libraries	PyTorch, RosPy, Numpy
	Matplotlib,Sci-kit,GPytorch
Hardware	Kinova, Raspberry Pi
Software	Mujuco, ROS, Openai-Gym
Systems	Ubuntu,Windows

Please visit my homepage for more information: https://patricia1019.github.io

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