Yuanzhao Zhang

https://yuanzhaoz.github.io/

Email : nhayst@gmail.com

Mobile : +44 07410 368641

Research Engineer with MPhil degree from Cambridge, working experience across different industries. Strong background in Machine Learning and Software Engineering. Proven research skills developed in laboratory and industrial settings.

Education

- **University of Cambridge** — Cambridge, UK
  MPhil in Machine Learning, Speech and Language Technology — *Oct. 2017 – Nov. 2018*

- **Hong Kong University of Science and Technology** — Hong Kong
  BEng in Computer Engineering (First Class Honors) — *Sep. 2013 – Jun. 2017*

Professional Experience

- **Samsung AI Center** — Cambridge, UK
  Research Engineer — *Jul. 2020 - Present*
  - Developing multi-modal vision-language models, such as Visual Question Answering systems.
  - Developed custom end-to-end dialogue models for AI assistant.
  - Assisted team members on daily tasks including but not limited to: building data pipelines for model training, running baseline experiments for paper submission, etc.

- **Babylon Health** — London, UK
  Research Engineer — *Jan. 2019 - Jun. 2020*
  - Developed framework of using NLP models to predict global health statistics(disease incidence, prevalence, etc).
  - Worked on automatic medical triage using Deep Reinforcement Learning.
  - Integrated human eye gaze estimation framework into medical vision pipeline.

- **BMLL Technologies** — London, UK
  Machine Learning Intern — *Oct. 2018 - Dec. 2018*
  - Worked on optimized trade execution using Online Learning and Reinforcement Learning methods.

- **Cisco Systems(China) Research & Development Co. Ltd** — Shanghai, China
  Intern — *Jun. 2016 - Sep. 2016*
  - Designed and implemented the prototype of "Intelligent Equipment Leverage System".
  - Developed software tool to improve bill of materials processing efficiency.

- **HKUST Robotics Team Robocon Sub-team** — Hong Kong
  Hardware Engineer — *Dec. 2013 - Jun. 2014*
  - Designed motor controller and linear CCD module, set up hardware for communication system.

Publication & Research

C. Shen, Y. Zhang, Z. Li, F. Gao, and S. Shen. Collaborative air-ground target searching in complex environments. In *2017 IEEE International Symposium on Safety, Security and Rescue Robotics (SSRR)*, pages 230–237, Oct 2017 http://ieeexplore.ieee.org/document/8088168/

Albert Buchard, Baptiste Bouvier, Giulia Prando, Rory Beard, Michail Livieratos, Dan Busbridge, Daniel Thompson, Jonathan Richens, Yuanzhao Zhang, Adam Baker, et al. Learning medical triage from clinicians using deep q-learning. *arXiv preprint arXiv:2003.12828*, 2020 https://arxiv.org/abs/2003.12828

Yuanzhao Zhang, Robert Walecki, Joanne R Winter, Felix JS Bragman, Sara Lourenco, Christopher Hart, Adam Baker, Yura Perov, and Saurabh Johri. Applying artificial intelligence methods for the estimation of disease incidence: The utility of language models. *Frontiers in digital health*, page 31, 2020 https://www.frontiersin.org/articles/10.3389/fdgth.2020.569261/full

Yuanzhao Zhang and Yichuan Zhang. Manifold hamiltonian dynamics for variational auto-encoders https://www.mlmi.eng.cam.ac.uk/files/thesis_yuanzhao_zhang.pdf

HomeFit2K: A Fine-grained Video Dataset for Understanding Exercise Steps, Common Errors, and Physical States in Home Fitness Videos (ECCV 2022 under review)

Patent

Yuanzhao Zhang, Robert Walecki, Iurii Perov, Adam Philip Baker, Christopher Robert Hart, Sara Marisa da Nazaré LOURENÇO, Joanne Rebecca Winter, and Saurabh Johri. Context aware machine learning models for prediction, March 10 2022. US Patent App. 17/016,735
https://patents.google.com/patent/US20220076828A1/en

Projects

- **Manifold Hamiltonian Dynamics for Variational Auto-Encoders**   Cambridge, UK
  Researcher   *Mar. 2018 - Aug. 2018*
    - Researched an algorithm to improve VAEs by approximating the intractable posteriors using MHMC.
- **Collaborative Air-Ground Target Searching in Complex Environments**   Hong Kong
  Researcher   *Sep. 2016 - Aug. 2017*
    - Researched vision-based target detection algorithm and autonomous trajectory generation.
    - Developed sensor fusion algorithm using extended Kalman filter.
- **Securities Portfolio Management System**   Hong Kong
  Software Developer   *Jun. 2016 - Sep. 2016*
    - Constructed web-based securities portfolio management system under .NET framework.
- **Search & Rescue robot, Embedded System Project**   Hong Kong
  Team Member   *Feb. 2016 - Jun. 2016*
    - Built a search & rescue robot based on STM32 microcontroller.
    - Implemented 2-D map generation and active detection of nearby human being.
- **Undergraduate Research Opportunities Program**   Hong Kong
  Researcher   *Sep. 2014 - Jun. 2015*
    - Aerial Smart-Phone Acrobat: Created the communication system for a smartphone-powered UAV.
    - Nano-Transistor Modeling for Circuit Simulation: Examined the aging effect of transistors.

Technical Skills

- Proficient in Python, C/C++, C, Java, VBA, Matlab; experience in HTML, Android app development
- Proficient in deep learning, Bayesian inference
- Proficient in PyTorch, TensorFlow, Keras, HTK and various machine learning toolkits
- Experience in robotic system development under ROS, Altium Designer and PCB board design
- Experience in database management, SQL, Docker, Git, Azure and web development under .NET

Awards

- Scholarship Scheme for Continuing Undergraduate Students
- Deans List for 5 consecutive semesters
- HKSAR Government Scholarship Fund - Talent Development Scholarship
- Champion of 2014 ABU Asia-Pacific Robot Contest, Hong Kong regional contest

Activities

- Won silver medal in Kumite junior group at 2015 Karate Hong Kong Joint University Tournament.
- Selected as volunteer for event preparations at TEDxHKUST.
- Selected as tutor for HKUST Robotics Team new member training.
- Elected as Internal Secretary of HKUST Karate Club, handled intra-society affairs.