Gilbert Yang Ye (He/Him/His)

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AREA OF STRENGTHS

Mixed Reality, Human Factors, Tele-presence and Tele-training, Computer Graphics, Machine Learning, Eye-tracking

SKILLS

Programming language and tools: Python; C++; C#; Unity; Unreal; MATLAB; R; Git; ROS; Pytorch; Tensorflow
Industrial knowledge: Mixed Reality; Embodied AI; Physiology evaluation; Reinforcement Learning; Data analysis
Interpersonal skills: Communication; Leadership; Team player; Critical thinking

EDUCATION

University of Florida, USA Sep 2020 – Expected May 2024
Ph.D. in Engineering. Research on VR and Human Factors GPA: 4.00/4.00

- Dissertation topic: Immersive Motor Skill Learning using Haptic Sensation Transfer in Construction

Imperial College London, UK Sep 2019 - Sep 2020
M.Sc. in Applied Computational Science and Engineering Merit Honor

- Performed 3D particle physics simulation, numerical flow simulation, and HPC computing with C++
- Dissertation topic: A GNSS Satellite Selection Scheme based on Line-of-Sight and Satellite Geometry with a Machine Learning Approach

The Hong Kong Polytechnic University, Hong Kong SAR Sep 2015 - June 2019
B.Sc. (Hons) in Building Engineering and Management GPA: 3.62/4.00 | Ranking: Top 3%

- Academic exchange in University of Maryland and University of British Columbia

RESEARCH EXPERIENCES

University of Florida, USA
Research Assistant; Supervised by Dr. Eric Jing Du Sep 2020 – Present

- Programmed several VR simulations with C# in Unity and Python interphase, such as 3D terrain deformation, flow simulation, and interactive soft ragdoll.
- Established an innovative human haptic-visual training and evaluation pipeline utilizing Unity, ROS, and haptic devices. This effort leads to a Minimum Viable Product (MVP) under collaborations with partners.
- Developed various VR functions and assets for research purposes, such as eye tracking and analytics, MoCap, multiplayer collaboration, robot teleoperation, immersive wayfinding and maintenance, and UIs.
- Applied deep reinforcement learning to design advanced drone navigation algorithms.

University of College London, UK
Student Assistant; Supervised by Dr. Anahid Basiri Mar 2020 - Aug 2020

- Designed a GNSS satellite signal collection, analysis, and filtering scheme with Python, Laika, Scipy, and OS MasterMap to optimize localization accuracy.

Hong Kong Polytechnic University, HKSAR
Research Assistant; Supervised by Dr. Shuo Yang Aug 2018 - Mar 2019

- Data mining and cleaning for an ECS project: "Assessing Financial Forecasts in Equity-based Crowdfunding".

University of Maryland, College Park, USA
Research Assistant; Supervised by Dr. Qingbin Cui Sep 2017 – Dec 2017

- Executed data analysis of the Kuznets Curve Theory with World Bank Open Data.
- Conducted an extensive literature review to explore the state-of-the-art of the smart city strategy.

INDUSTRIAL EXPERIENCES

Ho & Partners Architects Engineers & Development Consultants Ltd, HKSAR
Project Management Assistant Oct 2018 – Jul 2019

- Conducted building inspection and drafted conditional surveys for the Architectural Services Department (ArchSD) Properties (Agreement No. 5VF106) with AutoCAD and Revit.
- Identified and quantified structural risks using OpenCV and Python for report drafting.

Beijing Institution of Residential Building Design & Research Co. Ltd, China
Engineer Assistant May 2018 – Jul 2018

- Initiated and led a pilot project focused on the automation structural design check.
- Successfully designed a software program utilized Python and Regex in the pilot project. The software improved accuracy and reduced a recurring 3-day workload to single mouse click.

C&H Properties, Singapore
IT Assistant Jun 2017 – Aug 2017

- Initiated and led a pilot innovation project focused on streamlining the workflow for annual database maintenance and update.
- Employed tools including BeautifulSoup4 and regex, integrated within the Python programming environment, to automate intricate web-scraping and data processing tasks.

LEADERSHIP AND SERVICES

Food For Thought Project, HKSAR & UK
Co-founder & Event Organizer Dec 2016 - Apr 2017

- Initiated a project team and organized several events in HK and UK: volunteer services, workshops, Facebook challenge, exhibition etc., with the theme of preserving food and building a sustainable society

Debate Team, HKSAR
Elite Nov 2015 - May 2019

- Represented the Hong Kong Polytechnic University to attend the World Mandarin Debating Championship 2018 (Global), RTHK University Debate Competition 2017 (Hong Kong); Ten-Parties' Debate Competition 2016 (Hong Kong).

The Salvation Army, HKSAR
Volunteer Feb 2018 - Aug 2018

- Visited elderly periodically, designed a project to examine the living conditions of elderlies in HK, and established an age-friendly community design proposal

AWARDS

HFES Best Paper Award 2022 Human Factors and Ergonomics
Engineering Award - Witters Competition 2021 University of Florida
Winner of the Kaggle Computer Vision Competition: The Identification Game 2020 Kaggle
Deans' Honor List 2019 Hong Kong Polytechnic University
Outstanding Student Award 2018 Hong Kong Polytechnic University
The Elite Employee of the Season 2018 Beijing Institution of Residential Building Design & Research Co. Ltd
HKSAR Reaching Out Award 2018 HKSAR
Global Student Project Fund 2017 Hong Kong Polytechnic University
Global Awareness Award 2017 Hong Kong Polytechnic University
Championship of Knowledge and Action Cup Debate Competition 2013 Dongguan Department of Education

SELECTED PUBLICATIONS AND PATENTS

Selected Peer-reviewed Journal Papers

1. You, H., **Ye, Y**., Zhou, T., Zhu, Q., & Du, J. (2023). Robot-Enabled Construction Assembly with Automated Sequence Planning based on ChatGPT: RoboGPT. arXiv preprint arXiv:2304.11018.
2. **Ye, Y**., Xia, P., Zhou, T., & Du, J. (2023). Spatial Memory of BIM and Virtual Reality: Mental Mapping Study. Journal of Construction Engineering and Management, 149(7), 04023042.
3. **Ye, Y**., You, H., & Du, J. (2023). Improved trust in human-robot collaboration with ChatGPT. IEEE Access.
4. **Ye, Y**., Zhou, T., & Du, J. (2023). Robot-assisted immersive kinematic experience transfer for welding training. Journal of Computing in Civil Engineering, 37(2), 04023002.
5. **Ye, Y**., Shi, Y., Srinivasan, D., & Du, J. (2022). Sensation transfer for immersive exoskeleton motor training: Implications of haptics and viewpoints. Automation in Construction, 141, 104411.
6. **Ye, Y**., Shi, Y., Xia, P., Kang, J., Tyagi, O., Mehta, R. K., & Du, J. (2022). Cognitive characteristics in firefighter wayfinding Tasks: An Eye-Tracking analysis. Advanced Engineering Informatics, 53, 101668.

Patents

1. Du, J., **Ye, Y**. "Systems and Methods Remote Transferring of Sensation for Physical Motor Training". U.S. Patent Application No.63/371,016. Filed on August 10, 2022.