Derong Jin

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EDUCATIONAL BACKGROUND

School of General Engineering (International Model School) Sept. 2017 - Jun. 2021
Beihang University (BUAA)

- Major: Mechanical Engineering (Engineering Test Class).
- Weighted Average Score: 89.67/100.
- Computer Skills: Proficient in Python, C, C#, Unity, MATLAB, SPSS, SolidWorks, AutoCAD, CATIA, ANSYS, LaTex.
- Core Courses: Calculus (99/100), Differential Equations (98/100), Computer Science and Programming (93/100), Big Data and Brain-inspired Intelligence (94/100), The Principles of Automatic Control (100/100), Intelligent Robotics (96/100), Intelligent Manufacturing (95/100), Fundamental of Measurement Technology (100/100); Teaching in English by Internationally Renowned Professors.

University of Tokyo & Kogakuin University Aug. 2019 - Sept. 2019

- **Sakura Science** Summer Academic Exchange Program (The top 10% of students are recommended by the College).
- Presented the research "Virtual Reality Modeling Technology Based on Tactile Texture Feedback" on the poster session of the joint symposium among Kogakuin University, Tokyo University of Pharmacy and Life Sciences, and Tokyo Medical University.

PUBLICATION

- *Yi-Jun Li, **De-Rong Jin** (co-first author), Miao Wang, Jun-Long Chen, Frank Steinicke, Shi-Min Hu and Qinping Zhao.* Detection Thresholds with Joint Horizontal and Vertical Gains in Redirected Jumping. Proceedings of IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR 2021), **Accepted**.
- *Yi-Jun Li, Miao Wang, **De-Rong Jin**, Frank Steinicke, Shi-Min Hu and Qin-Ping Zhao.* Effects of Virtual Environments and Self-representations on Redirected Jumping. IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (IEEE VRW 2021), **Accepted**.

RESEARCH EXPERIENCE

- **inDeco, R&D Center**
  Topic: Image-Based 3D Shape Retrieval (IBSR)
  Position: Algorithm engineering intern; Supervisor: Mr. Jian-chao Dong Apr. 2021 – now
  - Used deep learning (DeepID network) to retrieve the "similar" furniture (3D model) / texture (2D figure) from a few example inputs.

- **State Key Laboratory of Virtual Reality Technology and Systems (BUAA) & Virtual Reality Research Center in Peng Cheng Laboratory (PCL)**
  Topic: Research on Redirected Jumping in Virtual Reality
  Position: Researcher and Intern; Supervisor: Prof. Shi-min Hu and Miao Wang Nov. 2019 - Nov. 2020
  Subtopic one: research on the effects of different self-representations (invisible body, shoes, and human avatar) and scenes (simple scene and forest scene) on the detection threshold of two-legged takeoff jump
  - Programmed with Unity3D to create a virtual environment for the user study.
  - Used SPSS, MATLAB, Python and C# to analyze the experimental data, calculate the significance and correlation, fit the function, draw the threshold image, concluded that the detection threshold ranges for horizontal translation gains were significantly smaller in the high-fidelity natural VE than those in the simple VE, while no significant differences in detection thresholds were found among self-representations.

  Subtopic two: how humans perceive distance manipulation when using multiple gains in redirected jumping

- Designed a novel user study experiment to acquire valid data for proposing a multidimensional psychometric function fitting approach, concluded that the imperceptible range for one gain varied with the gain of another.
- Designed two redirected jumping-based VR games as applications with joint horizontal and vertical gains to demonstrate the effectiveness of the redirected jumping technique.

- **National College Students' Innovation and Entrepreneurship Training Project & National Academy of Engineering (NAE) - Grand Challenges Scholars Program (GCSP)**
  Topic: Virtual Reality Modeling Technology Based on Tactile Texture Feedback
  Position: Researcher and Team Leader; Supervisor: Prof. Yuru Zhang Jan. 2019 - Dec. 2020
  - Been awarded the excellent project by the Nation (the highest level, **rank 1st** in the faculty).
  - Purchased, cut and processed 3M conducting glass, and completed the test of selecting an appropriate electric wave to generate the striped texture on the 3M glass.
  - Utilized Python to get the relative position coordinates of the finger on the glass in real time, which laid a foundation for the subsequent VR virtual scene finger positioning.
  - Employed SolidWorks to model the original design form of Oculus Rift handle.
  - Created a virtual scene with Unity, finished Unity's 3D Demo design, and built striped blocks and scenery in Unity.
  - Designed a simple external device with generating tactile texture feedback to help users obtain texture feedback with different degrees of thickness and improve the authenticity of user experiences.

OTHER PROJECTS

Electronic and Control System Design of Eurobot Nov. 2020 - Jun. 2021

Undergraduate capstone project; Supervisor: Prof. Abdel EL Kamel

- Design of the whole electronic hardware system and control strategies of the small robot for *Eurobot Competition 2021*.
- Used STM32 and Raspberry Pi to serve as slave / master computer of the robot.
- Employed Python/C++ language to program ROS system embedded in the Raspberry Pi, C language to program FreeRTOS system embedded in the STM32.

Research on Multiple UAV Collaborative Track Navigation Based on Q-Learning May. 2020

Supervisor: Prof. Baochang Zhang

- Applied MATLAB to edit code, set the danger radius and detection range, fulfill information sharing and collaboration and the real-time route planning of multiple UAV based on single UAV route planning.
- Analysed the influence of information sharing, different initial positions, K-values, and safety distance values on path planning based on Cooperative and Geometric Learning Algorithm (CGLA).
- Improved the implementation scheme of dual drones, achieving that the two drones successfully got out of the predicament.

HONORS AND AWARDS

- 2018-2020 Studies Excellent Scholarship of BUAA (Three Times, Top 10%).
- 2019 University-level Outstanding Student Cadres of BUAA (Top 5%).
- 2017 Excellent Scholarship for Freshman of BUAA (Top 5%).
- 2017 School-level Excellent Student (Top 5%).

EXTRACURRICULAR ACTIVITIES

- Vice President of The Student Union in The School of General Engineering
  - Organized students to carry out activities and supervised the internal assessment of the Student Union.
  - Rated as the "Outstanding Student Union of the University" (5 out of 35).
- Excellent Volunteer of The 1st BUAA International Engineering Education Forum.