Tsung-Yuan Tseng

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Education

RWTH Aachen University **Oct. 2020 - Present**
Master of Science in Robotic Systems Engineering, Grade: 1,4 *Aachen, Germany*

Eidgenössische Technische Hochschule Zürich **july 2020**
Robotics Summer School *Zürich, Switzerland*

National Tsing Hua University **Sept. 2014 - June 2018**
Bachelor of Science in Power Mechanical Engineering, Grade: top 10% *Hsinchu, Taiwan*

Publication

Edwinn Gamborino, Alberto Herrera Ruiz, Jing-Fen Wang, Tsung-Yuan Tseng, Su-Ling Yeh, and Li-Chen Fu, Towards effective robot-assisted photo reminiscence: Personalizing interactions through visual understanding and inferring, HCI International (2021).

Research Experience

IGMR-RWTH Aachen University **May 2021 - Present**
Student Research Assistant *Aachen, Germany*

- Research on optimization-based task planning of cooperating robots.

AI Research Center, National Taiwan University **July 2020 - Sept. 2020**
Research Assistant, Topic: Robot-Assisted Photo Reminiscence *Taipei, Taiwan*

- Presented a novel implementation of a reminiscence companion robot, which uses Artificial Intelligence-based Image Understanding techniques to proactively drive the reminiscence process in social interactions with elderly users.
- Designed and trained the Image Understanding module based on All-Age-Faced Dataset to aim at Asian people as target users.

Work Experience

Chieftek Precision Co., Ltd. **Sept. 2019 - June 2020**
Robotics Software Engineer, Topic: Robotic Simulator *Tainan, Taiwan*

- Combined left-children right-sibling tree data structure and DH convention, and utilized preorder traversal algorithm to draw and display assemblies via OpenGL and built physics world via Bullet Physics.
- Invented Single-Axis Dragging algorithm to operate joint space motion of a six-axis arm through simple click-and-drag.
- Invented the **patent-pending** 6 DoFs interactive marker and the build-in algorithm, allowing user to manipulate the end-effector position and orientation of a six-axis arm effectively and intuitively.

LEISO Co., Ltd. **Mar. 2018 - Jan. 2019**
R&D Engineer *Hsinchu, Taiwan*

- Pioneered a patent-pending product called Ball Bar Box (BBB) with Dr. Wei-Tai Lei. BBB is a measurement system with an accuracy of +/-2 um and can be used to measure motions errors of multi-axis machine tools and robotic manipulators.

R&D Intern *Hsinchu, Taiwan*

- Independently achieved the software that schedules a measuring procedure of a robotic manipulator, helping users generate optimal test paths for the measurement of DH parameters of a robotic arm.
- Increased the efficiency of the measuring procedure by **fifteen times** with the guarantee of global optimum result.

Honors

ETH Robotics Summer School Fund: Awarded $400 CHF travel grands as a participant. ETH Zürich
CPC Patent Bonus: Awarded $3608 USD after inventing and filing a patent as first author. CPC
Undergraduate Research Competition: Won the first place out of 40 teams and prize money $1283 USD. NTHU
Academic Achievement Awards of National Tsing Hua University: Ranked among top five percent. NTHU
Great Academic Scholarship: Hua-Yen scholarship $323 USD, Peng Wenmin scholarship $323 USD. NTHU

Skills

Languages: C, C++, C#, Python, Matlab
Developer Tools: Visual Studio, TensorFlow, Pytorch, OpenGL, Bullet Physics, Git, ROS, Ubuntu, AutoCAD, Autodesk Inventor, SolidWorks.