

TSUNG-YUAN TSENG

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Education

RWTH Aachen University

Master of Science in Robotic Systems Engineering, Grade: 1,4

Oct. 2020 - Present

Aachen, Germany

Eidgenössische Technische Hochschule Zürich

Robotics Summer School

July 2020

Zürich, Switzerland

National Tsing Hua University

Bachelor of Science in Power Mechanical Engineering, Grade: top 10%

Sept. 2014 - June 2018

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

Student Research Assistant

May 2021 - Present

Aachen, Germany

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

AI Research Center, National Taiwan University

Research Assistant, Topic: Robot-Assisted Photo Reminiscence

July 2020 - Sept. 2020

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.

Robotics Software Engineer, Topic: Robotic Simulator

Sept. 2019 - June 2020

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.

R&D Engineer

Mar. 2018 - Jan. 2019

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 μ m 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 grants 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.