You-Feng (Arthur) Wu

A techie initiator, a problem hacker and a great team player.

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Objective

I am a research scientist in Taiwan. My research goal is to achieve visual intelligence for real-world applications and study advanced topics in machine learning and computer vision. I have three advance researches about computer vision in conference, including ICPR, MAPR and CVGIP.

Experience

Artilux Inc. **Mar. 2022 – Present.**

Senior Software Engineer *Hsinchu, Taiwan*

- **Depth completion** - Uses sparse, noisy ToF depth measurements with RGB images to obtain a complete depth map.
- **Neural SLAM** - Real-time joint camera tracking and dense surface reconstruction from RGB-D sensors.

KaiKuTeK Inc. **Feb. 2020 – Mar. 2022**

Machine Learning engineer *Taipei, Taiwan*

- **Rapid gesture recognition** - Robust Impulse-like event localization with extremely short reaction times.
- **Sub-actions exploration** - An one-fits-all HCI solution extracts generic sub-actions that shared across dataset.
- **Quantization-aware training** - Co-designs a training and quantization procedure to preserve E2E model accuracy.
- **Long-Tailed gesture recognition** - Alleviate the category quantity distribution imbalance problem for each category.
- **Temporal coherency** - Explicitly enforce coherency by encouraging similarity of temporally adjacent frames.

Education

National Chung Cheng University **Sep. 2017 – Jun. 2019**

M.Sc. in Electronic Engineering ***(4.14/4.30)*** *Chiayi, Taiwan*

National Kaohsiung University of Applied Sciences **Sep. 2013 – Jul. 2017**

B.Sc. in Electronic Engineering *Kaohsiung, Taiwan*

Thesis

DEN: Disentangling and Exchanging Network for Depth Completion

Research directions: **Depth Inpainting, Disentangled representation learning** | *Pytorch* *Master Thesis*

- DEN framework and utilized the RGB image to guide the depth completion task.
- We deal with mixed depth pixels by introducing a novel depth representation, GDC.
- Combine the cross-entropy and mean square losses to improve the precision of depth estimation.
- Spatial scale offset, which is no longer a significant problem since we applied the sparse depth image for reference.

Publications

You-Feng Wu, Vu-Hoang Tran, Ting-Wei Chang, Wei-Chen Chiu, Ching-Chun Huang, "DEN: Disentangling and Exchanging Network for Depth Completion", In ICPR, Sep., 2020.[Paper][Code]

You-Feng Wu, Vu-Hoang Tran, Wei-Chen Chiu, Ching-Chun Huang, "SEMI-SUPERVISED AND MULTI-TASK LEARNING FOR ON-STREET PARKING SPACE STATUS INFERENCE", In MAPR, May., 2019.[Paper][Code]

You-Feng Wu, Vu-Hoang Tran, Ting-Wei Chang, Wei-Chen Chiu, Ching-Chun Huang, "SENSOR BASED ON-STREET PARKING SPACE STATUS INFERENCE UPON A SEMI-SUPERVISED AND MULTI-TASK LEARNING NETWORK", In CVGIP, Aug., 2018.

Selected Projects

Computer Vision Application | *Python*

- A Multi-task Network for Scene Segmentation and Depth Map Refinement used in a RGBD Robot.
- An Study of Active SLAM for a Cleaning Robot using an Omnidirectional Camera

Geomagnetic Sensor Application | *Python, C++*

- Automatic Management of Roadside Parking Spaces based on Deep Learning, Geomagnetic Sensor Networks, and LoRa Communication.

Technical Skills

Machine Learning and Data Science: Pytorch, Tensorflow, Keras
Programming Languages: Python, C, Java
Developer Tools: Vim, Pycharm, VS Code, MATLAB
Technologies/Frameworks: Linux, Git

Honors and Awards

Master Thesis Award Honorable mention, Institute for Public Policy Research (IPPR), 2020.
Best Paper Award, Multimedia Analysis and Pattern Recognition (MAPR), 2019

Patents

You-Feng Wu. 2020. IMPULSE-LIKE GESTURE RECOGNITION METHOD, AND IMPULSE-LIKE GESTURE RECOGNITION SYSTEM. Taiwan Patent I748778, filed Dec 1, 2021.
You-Feng Wu. 2020. IMPULSE-LIKE GESTURE RECOGNITION METHOD, AND IMPULSE-LIKE GESTURE RECOGNITION SYSTEM. U.S. Patent 17/084,986, filed Oct 30, 2020. Patent pending.

Cover letter

I am writing to apply for Senior Machine Learning Engineer. I'm currently a Senior Software Engineer at Artilux and I'm working on a dedicated SDK/API for our product. Meanwhile, my major task, Deep Completion, using a carefully designed backbone and refinement module has produced high-quality completed depth maps, even with few valid points (500 points). Further, I also tackle the occlusion errors induced by dual calibration. Currently, my role is DRI for all AI related tasks in Artilux. I also had the experience of training and mentoring 2 newcomers to become key members of the KaiKuTek team.

In my role as Senior Engineer, I proved to be an efficient and strong developer. With more than 3 years of experience developing algorithm, I'm confident my professional expertise make me a great fit for the position.

My time spent in this industry has prepared me for such an opportunity, and I sincerely hope I can contribute soon as a member of your team. I've attached my personal web page, which further details my experience, skills and educational background. Please don't hesitate to reach out if you have any questions about my background. I look forward to the opportunity to speak with you further. Thank your for your time and consideration.

Sincerely,
Arthur Wu