You-Feng (Arthur) Wu

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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. Currently focusing on depth completion task and intelligent-edge computing

Work Experience

Artilux Inc. **Mar. 2022 – present**
Senior Software Engineer *Hsinchu, Taiwan*

- **Time-gated SPAD** - In-vivo SWIR-based non-invasive glucose level detection.
- **Depth completion** - Use 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.
- **On-device AI inferencing** - Deploy model to Qualcomm's chipsets using SNPE.

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
Edge AI Deployments: ONNX, SNPE, Tensorflow Lite
Programming Languages: Python, C++, Java
Developer Tools: Vim, Pycharm, VS Code, MATLAB
Technologies/Frameworks: Linux, Git, Docker

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. 2023. General gesture detection method and general gesture detection device. Taiwan Patent I810564, filed May 14, 2022.
You-Feng Wu. 2022. Headset apparatus with gesture recognition function. Taiwan Patent I786678, filed Jun 11, 2021.
You-Feng Wu. 2022. Range Doppler angle sensing method and device. Taiwan Patent I756122, filed Apri 30, 2021.
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 the Staff Machine Learning Engineer position. Currently, I am a Senior Software Engineer at Artilux, where I lead the development of specialized SDKs and APIs for our products. One of my key achievements is spearheading the "Depth Completion" project, where I designed a robust framework that generates high-quality depth maps even with minimal data points (as few as 500). I also resolved occlusion errors caused by dual calibration, significantly improving accuracy.

In addition to my technical contributions, I serve as the coordinator for all AI-related tasks at Artilux, ensuring that cross-functional teams—from hardware to algorithm development—are aligned and working toward our common goals. I've successfully facilitated collaboration between different teams, helping bridge gaps in communication and ensuring smooth project execution across departments. This experience has allowed me to take on a leadership role, driving not only technical innovation but also team cohesion.

With over 5 years of experience in algorithm development and proven cross-team leadership, I am confident that my background makes me an excellent fit for this position. I am genuinely excited about the opportunity to join your team and contribute to its success.

I have included my personal website for further details on my experience, skills, and education. Please feel free to reach out if you have any questions. I look forward to the opportunity to discuss how I can contribute to your team. Thank you for your time and consideration.

Sincerely,
Arthur Wu