Yancong Lin
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Summary

A dedicated, creative, hands-on researcher on 3D computer vision.
Interested in pre-wiring deep learning with geometric inductive priors.

Experience

9/2021 - 9/2022 Postdoc, Delft University of Technology, The Netherlands

Education

9/2017 - 4/2022 PhD, Delft University of Technology, The Netherlands
Dissertation: Data-efficient learning of geometric structures from single-view images
9/2014 - 6/2017 MEng in Computer Science, Tianjin Univ, China
9/2010 - 6/2014 BSc in Physics, Southwest Jiaotong Univ, China

Research

9/2021 - 9/2022 **Vision for Industrial Inspection - aircraft engines**
Transfer learning from synthetic data to the real-world;
3D reconstruction from a single video using NeRF.

3/2021 - 9/2021 **3D reflection symmetry detection from single-view images**
Incorporated 3D mirror geometry into CNNs;
Reduced dependency on big data and achieved real-time inference.

3/2020 - 3/2021 **Geometric priors for deep vanishing point detection**
Presented a differentiable mapping from image plane to Gaussian sphere;
Proposed a learning-based detector robust to domain shift (synthetic - real);
Gained experience in Graph-CNNs on point cloud data.

9/2017 - 3/2020 **Deep Hough-Transform line priors**
Proposed a stand-alone Hough Transform module for end2end learning;
Enhanced the performance of CNNs in a small-data regime;
Extended Hough Transform to semi-supervised lane detection.

9/2015 - 1/2016 **Engineering: Multi-view 3D video capture system**
Implemented real-time 3D display (16 cameras, 30 FPS, 1920 × 1080).

Publications

1. Deep vanishing point detection: Geometric priors make dataset variations vanish. **Y. Lin**, R. Wiersma, S. Pintea, K. Hildebrandt, E. Eisemann and J. C. van Gemert. CVPR 2022.
2. Deep Hough-Transform line priors. **Y. Lin**, S. Pintea, and J. C. van Gemert. ECCV 2020.
3. Investigating transformers in the decomposition of polygonal shapes as point collections. A. Alfieri, **Y. Lin**, and J. C. van Gemert. ICCV-workshop 2021, Best Student Paper.
4. Semi-supervised lane detection with deep Hough Transform. **Y. Lin**, S. Pintea, and J. C. van Gemert. ICIP 2021.
5. Data-efficient learning for 3D mirror symmetry detection. **Y. Lin**, S. Pintea, and J. C. van Gemert. Technical report, 2021.

Academic activities

Teaching Assistant

2019 - 2021	Seminar Computer Vision by Deep Learning (CS4245)

Reviewing

2020 - Now	CVPR/ICCV/ECCV, IEEE Transactions on Image Processing

Workshops

2020 - Now	Visual Inductive Priors for Data-Efficient Deep Learning Workshop

Awards

2016	National Scholarship, Ministry of Education, China

Supervision (Msc)

Chengming Feng	Synthetic pretraining for object detection, ongoing
Andrea Alfieri	On the decomposition of visual sets using Transformers, 2020
Kang Lang	Vertex-voting-based polygonal object detection, 2019

Skills

Programming	Python, C++, CUDA (implemented Conv2d from scratch in PyTorch)
Social	Editor/journalist for school newspaper

Interests

Fitness, Formula 1, Premier League, NBA

References

Dr. Jan van Gemert	Computer Vision Lab, TUDelft. J.C.vanGemert@tudelft.nl
Dr. Silvia-Laura Pintea	Netherlands Cancer Institute. Silvia.Laura.Pintea@gmail.com

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