

Hanlin Chen

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EDUCATION

National University of Singapore

Singapore

Department of Computer Science

Ph.D. Student of Computer Science

08/2022- now

- Relevant Courses: Uncertainty Modelling in AL, Advanced Topics in Machine Learning, 3D Computer Vision, Advanced Topics in Robotics, Advanced Topics in Program Analysis

Beihang University

Beijing, China

School of Automation Science and Electrical Engineering

Master of Science Control Engineering

09/2018- 01/2021

- Overall GPA: 90.1/100
- Relevant Courses: Digital Image Processing, Principles and Methods of Artificial Intelligence, Machine Learning Theory and its Application, Algorithm Design and Analysis, Matrix Theory, Computational Intelligence

Shenyang Aerospace University

Shenyang, China

Department of Aeronautics and Astronautics Engineering

Bachelor of Science Aircraft Design and Engineering

09/2014- 07/2018

- Relevant Courses: Advanced Mathematics, Linear Algebra, Probability Theory and Mathematical Statistics, C#

RESEARCH INTERESTS

- 3D Reconstruction, Understanding, and Generation
- Neural Rendering, 3D Gaussian Splatting

SELECTED PUBLICATIONS

Hanlin Chen, Fangyin Wei, Gim Hee Lee, **ChatSplat: 3D Conversational Gaussian Splatting**, arXiv, under review.

Hanlin Chen, Fangyin Wei, Chen Li, Tianxin Huang, Yunsong Wang, Gim Hee Lee, **VCR-GauS: View Consistent Depth-Normal Regularizer for Gaussian Surface Reconstruction**, NeurIPS, 2024.

Hanlin Chen, Chen Li, Yunsong Wang, Gim Hee Lee, **NeuSG: Neural implicit surface reconstruction with 3d gaussian splatting guidance**, arXiv, 2023.

Hanlin Chen, Chen Li, Mengqi Guo, Zhiwen Yan, Gim Hee Lee, **GNeSF: Generalizable Neural Semantic Fields**, NeurIPS, 2023.

Hanlin Chen, Li'an Zhuo, Baochang Zhang, Xiawu Zheng, Jianzhuang Liu, Rongrong Ji, David Doermann, Guodong Guo, **Binarized Neural Architecture Search for Efficient Object Recognition**, IJCV, 2021.

Hanlin Chen, Baochang Zhang, Song Xue, Xuan Gong, Hong Liu, Rongrong Ji, David Doermann, **Anti-Bandit Neural Architecture Search for Model Defense**, ECCV, 2020.

Hanlin Chen, Li'an Zhuo, Baochang Zhang, Xiawu Zheng, Jianzhuang Liu, David Doermann, Rongrong Ji, **Binarized Neural Architecture Search**, AAI, 2020.

RESEARCH EXPERIENCES

CVRP Laboratory (National University of Singapore)

Singapore

The research group focuses on digital modeling, 3D Scene Understanding and 3D Human pose and shape estimation.

Ph.D. Student, Advisor: Prof. Gim Hee Lee

08/2022- now

- **Project: Generalizable Neural Semantic Fields**
 - This project introduces a 3D scene segmentation method based on neural implicit representation, addressing the limitation of expensive scene-specific optimization. The approach utilizes multi-view image features and semantic maps, incorporating soft voting and view difference information, enabling generalization and competitive performance with only 2D supervision.
- **Project: 3D Scene Reconstruction with Gaussian Splatting**
 - This project introduces a 3D scene reconstruction method based on Gaussian Splatting, addressing the long optimizing times and poor robustness associated with traditional neural implicit reconstruction methods.
- **Project: 3D Conversational Gaussian Splatting**
 - This project enables chat-based interactions with 3D scenes at object, view, and scene levels. It improves flexibility and learning with decoupled language embeddings and a learnable normalization technique.

Machine Intelligence, Vision Lab (Alibaba DAMO Academy)

Beijing, China

The Vision Lab is dedicated to the development of computer vision technologies, which can perceive, understand, produce, and process image and video content, and generate and reconstruct 3D scenes and objects.

Computer Vision Algorithm Engineer, Advisor: Dr. Ming Lin

03/2021- 07/2022

- **Project: Detection and Recognition of License Plates**
 - Applied YoloX, CenterNet and DenseNet to detect cars, detected and recognized license plates respectively.
- **Project: Evaluation and Design of Neural Networks**
 - Analyzing zero-shot estimators on NAS and building a new benchmark on NAS.
 - Trying to design deep neural networks for microcontroller units based on NAS.

Computer Vision Algorithm Intern, Advisor: Dr. Ming Lin

06/2020- 09/2020

- **Project: Testing and Prediction Latencies for Neural Architecture**

➤ Tested latencies of networks and built a latency dataset. Used the dataset to train a model to predict latencies.

The Baochang Zhang's Group (Beihang University)

Beijing, China

The research group of Prof. Baohang Zhang from Beihang University, working on computer vision, especially in general visual perception in the real world.

Graduate Research Assistant, Advisor: Prof. Baochang Zhang

06/2019- present

- **Project: Efficient Neural Network Inference**
 - We improved visual processing on low-power edge devices by designing binarized neural networks (BNN) using neural architecture search (NAS). To enhance efficiency, we developed a performance-based strategy, used 1-bit BNN for faster inference, and addressed search challenges with the Upper Confidence Bound .
- **Project: Designing Robust Neural Network**
 - We designed robust networks against adversarial attacks by NAS. Used an anti-bandit algorithm based on a specific operation search strategy, which could learn a robust architecture based on a robust operation space.

SKILLS

- **Programming Languages:** Proficient in Python Language, C/C++.
- **Technologies and Frameworks:** Pytorch, Tensorflow, Linux.

HONORS&AWARDS

- Research Achievement Award in NUS **2023**
- Excellent Graduation Thesis in Beihang University **2021**
- Excellent Graduate in Beihang University **2021**
- National Scholarship in China **2020**
- Merit Student in Beihang University **2019-2020**
- The First Academic scholarship in Beihang University **2018**
- Liaoning Provincial Government Scholarship **12/2016**
- The First Prize Scholarship in Shenyang Aerospace University **09/2015, 04/2016, 10/2016**