

Shiyi Lan

PERSONAL INFORMATION	Tel: (240) 701-2979 Email: sylan@umd.edu	Homepage: https://voidrank.github.io
RESEARCH INTERESTS	(1) Object Detection (2) 3D Object Detection (3) Instance Segmentation (4) Large-scale Training (5) Auto-labeling	
PROGRAMMING SKILLS	C/C++, Python, JavaScript, HTML/CSS, Golang, Java, Scala, Cuda, PyTorch, Tensorflow, Caffe, MXNet, Django, Flask, Tornado, AngularJS, ReactJS, KoaJS, MongoDB, PostgreSQL	
WORK EXPERIENCE	NVIDIA Autonomous Vehicles Research Scientist (Manager: Jose M. Alvarez) <ul style="list-style-type: none">• Develop cutting-edge algorithms for autonomous driving.• Collect, summarize, present, and share the latest research on machine learning and deep learning for NVIDIA AI products• Provide feedback to NVIDIA hardware teams to help improve AI hardware designs	2788 San Tomas Expy, Santa Clara, CA 95051 3/1/2023 - Present
	NVIDIA Research Research Scientist (Manager: Anima Anandkumar) <ul style="list-style-type: none">• Develop cutting-edge algorithms for machine learning and deep learning.• Collect, summarize, present, and share the latest research on machine learning and deep learning to help other researchers develop new algorithms.• Lead and help research internship at NVIDIA to do cutting-edge research in deep learning• Lead and help the product team to migrate state-of-the-art algorithms into NVIDIA products• Develop and lead the AI software infrastructure to improve NVIDIA product	2788 San Tomas Expy, Santa Clara, CA 95051 05/20/2022 - 3/1/2023
	Amazon Go Applied Research Intern (Mentor: Leonid Pishchulin ; Manager: Bhara Singh) <ul style="list-style-type: none">• Fundamental research in Object Detection• Developing a high-precision object detection architecture.	Seattle, WA 05/24/2021 - 08/27/2021
	NVIDIA Research Research Intern, Machine Learning Group (Mentor: Zhiding Yu ; Manager: Anima Anandkumar) <ul style="list-style-type: none">• Fundamental research in deep learning and computer vision• Consultation and technology transfer to NVIDIA products• Developing a general object detection architecture.	Santa Clara, CA 01/27/2020 - 12/20/2020
	Wormpex AI Research Research Intern (Mentor: Zhou Ren ; Manager: Gang Hua) <ul style="list-style-type: none">• Intern Project: Real-time deep object detector• Proposed an anchor-free real-time deep object detector that bridges center-keypoint-based object detectors and edge-keypoint-based object detectors.• State-of-the-art performance on MS COCO and Pascal VOC.• One paper accepted to CVPR 2020	Bellevue, WA 05/25/19 - 8/19/19
	Bytedance AI Lab Research Intern, AI Lab (Mentor: Yuning Jiang), <ul style="list-style-type: none">• Intern Project: Deep Recommendation Warm-up System• Introduced deep learning into Recommendation system• Designed and implemented the offline training and inference architecture	Beijing, China 05/06/2018 - 08/18/2018
	Megvii Technology Research Intern, (Mentor: Yuning Jiang , Gang Yu) <ul style="list-style-type: none">• Intern Project: Proposing Instance Segmentation Candidates by Deep Feature Pyramid Network• Proposed the neck module that uses feature pyramid to generate multi-scale deep feature map for instance segmentation proposals.	Beijing, China 07/04/2016 - 05/01/2018

- One paper accepted to CVPR2017

EDUCATION	<p>University of Maryland, College Park Ph.D. Computer Science (Advisor: Prof. Larry S. Davis)</p> <p>Fudan University B.S. Computer Science and Technology</p>	<p>College Park, MD 2018-Present</p> <p>Shanghai, China 2014 - 2018</p>
HONORS & AWARDS	<ul style="list-style-type: none"> • 2023 1st place in CVPR 3D Occupancy Challenge • 2022 1st place in Robusts Vision Challenge (RVC) Semantic Segmentation Track • 2017 1st place in MS COCO Object Detection, 2nd place in MS COCO Instance Segmentation • 2015 The ICPC International Collegiate Programming Contest (ACM/ICPC) 2015 Shenyang Regional Contest, Silver Medal Award (Rank 18/300). • 2013 National Olympiad in Informatics of China, Bronze Medals(Rank 122/400). 	
SELECTED PUBLICATIONS	<ol style="list-style-type: none"> 1. Zhiqi Li, Zhiding Yu, David Austin, Mingsheng Fang, Shiyi Lan, Jan Kautz, Jose M Alvarez. “FB-OCC: 3D Occupancy Prediction based on Forward-Backward View Transformation“, Arxiv preprint 2. Junfei Xiao, Zhichao Xu, Shiyi Lan, Zhiding Yu, Alan Yuille, Anima Anandkumar, “1st Place Solution of The Robust Vision Challenge (RVC) 2022 Semantic Segmentation Track“, Arxiv preprint (https://arxiv.org/abs/2210.12852) 3. Shiyi Lan, Xitong Yang, Zhiding Yu, Zuxuan Wu, Jose M. Alvarez, Anima Anandkumar, “Vision Transformers Are Good Mask Auto-Labelers“, <i>IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)</i>, 2023. 4. Lingchen Meng, Hengduo Li, Bor-Chun Chen, Shiyi Lan, Zuxuan Wu, Yu-Gang Jiang, Ser-Nam Lim, “AdaViT: Adaptive Vision Transformers for Efficient Image Recognition“, <i>IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)</i>, 2022. 5. Shiyi Lan, Zhiding Yu, Christopher Choy, Subhashree Radhakrishnan, Guilin Liu, Yuke Zhu, Larry Davis, Animashree Anandkumar, “DISCO-BOX: Real-Time Detection, Instance Segmentation, and Semantic Correspondence From Bounding Box Supervision“, <i>International Conference on Computer Vision (ICCV)</i>, 2021. 6. Tianrui Guan*, Jun Wang*, Shiyi Lan†, Rohan Chandra, Zuxuan Wu, Larry Davis, Dinesh Manocha, “M3DETR: Multi-representation, Multi-scale, Mutual-relation 3D Object Detection with Transformers“, <i>Winter Conference on Applications of Computer Vision (WACV)</i>, 2022. † means the corresponding author. 7. Jun Wang*, Shiyi Lan*, Mingfei Gao, Larry S. Davis, “InfoFocus: 3D Object Detection for Autonomous Driving with Dynamic Information Modeling.” <i>European Conf. on Comp Vision (ECCV)</i>, 2020. This paper addresses the modeling issue in 3D Object Detection caused by uniform data distribution using POI Pooling and attention modules 8. Shiyi Lan, Zhou Ren, Yi Wu, Larry S Davis, Gang Hua, “SaccadeNet: A Fast and Accurate Object Detector” <i>IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)</i>, 2020. This paper proposed a fast and accurate keypoint based object detectors, which achieves the state-of-the-art performance on MS COCO dataset. 9. Shiyi Lan, Ruichi Yu, Gang Yu, Larry S Davis, “Modeling Local Geometric Structure of 3D Point Clouds using Geo-CNN”, <i>IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)</i>, 2019. This paper proposed a convolution-like operator for PointNet, which preserves local geometric relationship among points using decomposition and aggregation module. 10. *Hexiang Hu, *Shiyi Lan, Yuning Jiang, Zhimin Cao, Fei Sha. “FastMask: Segment Multi-scale Object Candidates in One Shot” <i>IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)</i>, 2017, Spotlight. It enables multi-scale object segmentation to be executed in one-shot. 	

PREVIOUS
PROJECTS

- Individual Project: Neural Style Transfer iPhone Camera 2017
A camera application on iOS that can apply neural style filter to photos. A SqueezeNet pretrained on ImageNet and MXNet ported to iOS are used in this project. I solved many compatibility issues in the project and my pull request to these issues for MXNet is accepted by MXNet Official Development Group.
- Individual Project: Online HTML5 video player with floating comments 2017 A Chrome extension which can wrap HTML5 and shows the real-time floating comments. KoaJS, ReactJS are used in this project.
- Alchemy: A deep learning toolkits based on Caffe and OpenCV, which supports data pre-processing such as cropping, resizing, interpolation for detection and segmentation.
- Fudan University StudentNet ChannelV: 2015 - 2016
A Youtube-like video website for students to watch, search, upload and share videos. AngularJS and Django are used in the project including a uploader supporting resuming from breakpoint, a danmaku(rolling comments) system, a video searcher and many good-looking pages.

ACADEMIC
SERVICES

- Conference Reviewer: AAAI20, CVPR21, ICCV21, CVPR22, ECCV22
- Journal Reviewer: IJCV20

Teaching Assistant:

- CMSC351 Algorithms (Fall 2020)
- CMSC426 Computer Vision (Spring 2020)
- CMSC420 Data Structure (2018 Fall - 2019 Spring)