ZIXIA XIA | CURRICULUM VITAE

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EDUCATION

Master of Computer Science and Technology Sep 2020-Jan 2023 (expected)
Tianjin University, Tianjin, China
GPA: 88.71/100 (Top 3%)
Advisor: Gang Pan
Research: deep learning, computer vision, robot control
Courses: Deep Learning, Image Synthesis Technique, Applied Statistics, Stochastic Processes, Software Architecture

Bachelor of Software Engineering Sep 2016-Jun 2020
Tianjin University, Tianjin, China
GPA: 86.28/100 (Top 10%, Postgraduate recommendation)
Courses: Advanced Mathematics, Linear Algebra, Discrete mathematics, Programming Practice, The Design and Analysis of Algorithm, Formal Methods, Internet of Things, Automobile Culture

PUBLICATIONS

Zixia Xia, Kang Liu, Gang Pan. "Domain Adaptive Object Detection with Dehazing Module". (In preparation)

Zixia Xia, Shuai Guo, Di Sun, Yaozhi Lv, Honglie Li, Gang Pan. "Structure-aware dehazing of sewer inspection images based on monocular depth cues", Computer-Aided Civil and Infrastructure Engineering, 2022. (IF:10+)

Zixia Xia. "A grid-background removal network based on domain transform", Tianjin University, 2020.

WORK EXPERIENCE

Microsoft summer/2022
Software Engineer Intern *Suzhou, China*
tech: active directory, tenant relocation, powershell, git

- Built a brand-new cmdlet to fix incorrect service instance during forward sync
- Designed and implemented an DIT size aware symphony AD handler

China Automotive Technology and Research Center summer/2019
Research Intern *Tianjin, China*
tech: GPU-learning, YOLO-V3, traffic sign detection, autonomous driving

- Built a NVIDIA Jetson TX2-based deep learning robot and provided a dataset of China traffic signs
- Established a compressed YOLO-V3 model, featuring with fire modules for reducing the number of parameters and dense connections between fire modules for strengthening feature extraction ability
- Enabled real-time detection speed and ignorable accuracy distortion

PROJECTS

Domain-adaptive object detection with dehazing module May 2022-present
tech: domain adaptation, object localization, perceptual loss, adversarial training

- Proposed a domain adaptation module with instance-level and pixel-level domain classifiers
- Utilized adversarial training to train Faster-RCNN and the dehazing net to alleviate the domain gap between hazy and haze-free domains
- Achieved state-of-the-art mAP of 49.51% on CitySpace and 41.01% on Foggy CitySpace, thereby generalizing the whole model to both hazy and haze-free images

A software for automatic defect detection in sewers Feb 2022-July 2022
tech: React, Django, CSS, HTML, labelme, YOLO-V5
github: https://github.com/ZixiaXia/PipeDefectManage

- Provided a dataset for sewer deficit detection with 20912 images, including 8 classes
- Implemented sewer deficit detection inserted with YOLO-V5
- Built a software for automated sewer inspection, including data processing and deficit detection

Structure-aware dehazing of sewer inspection images based on monocular depth cues Aug 2021-Jan 2022
tech: robot control, camera calibration, 3D vision, depth estimation, multi-task learning, coordinate attention
github: https://github.com/ZixiaXia/SANL-Net

- Proposed a depth estimation method based on robot control, camera calibration and monocular cues
- Constructed a dehazing dataset by atmospheric scattering model with varying atmosphere light (0.6, 0.8, 1) and varying scattering coefficient (1, 2, 3)
- Built a structure-aware non-local (SANL-Net) network comprising of a Semantic Net, a Spatial Net, and a structure-aware non-local (SANL) module
- Achieved state-of-the-art model performance in terms of 147 (MSE), 27.28 (PSNR), 0.8963 (SSIM), and 15.47M (parameters)
- Improved accuracy of downstream vision tasks on real-world images by SANL-Net

A grid-background removal network based on domain transform Jan 2020-May 2020
tech: domain transform, Discrete Cosine Transform (DCT), ResNet, hanzi recognition
github: https://github.com/ZixiaXia/GridRemoval

- Analyzed the relationship between frequency domain transform and grid features
- Proposed a frequency-aware model to remove grid background for gray-scale pictures
- Achieved a comparable increment performance on RGB (PSNR: 1.12, SSIM: 0.1012) and gray-scale images (PSNR: 1.58, SSIM: 0.1271) while compared with the state-of-the-art method

An automatic pipeline for localization and identification of car plates Sep 2018-Oct 2018
tech: histogram equalization hough transform and perspective tansformation, vertical projection, SVM
github: https://github.com/ZixiaXia/PlateRecognition

- Pre-processed the image by histogram equalization, hough transform and perspective tansformation
- Split every char of the car plate by vertical projection
- Recognized each char by SVM
- Provided a PC software for the whole pipeline

SKILLS

Programming Languages	Python, C/C++ , MATLAB, C#, Java, Javascript, VB
Library	Pytorch, Tensorflow, Numpy, Pandas, Matplotlib, OpenCV, React
Languages	English (IELTS: 7.0), Chinese (Mandarin)

AWARDS

LuKaiNing Professor Scholarship (Rank: 1/249)	2022
Second-class academic Scholarship	2021
First-class academic Scholarship	2020
Sailing Independence Award	2020
Advance Individual	2017 - 2019, 2021
Merit Student	2017 - 2019, 2022

OTHER EVENTS

Volunteer for China Society Of Image and Graphics (CSIG)	2021 - present
Attend Vision And Learning SEminar (VALSE 2020)	2021