

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: Machine Learning, 3D vision, Image Processing, Image Recognition

Courses: Deep Learning (92), Image Synthesis Technique (87), Applied Statistics (93), Software Architecture (93)

Bachelor of Software Engineering

Sep 2016 - Jun 2020

Tianjin University, Tianjin, China

GPA: 86.28/100 (Top 20%, Postgraduate recommendation)

Courses: Programming Practice (93), Formal Methods (93), The Design and Analysis of Algorithm (88), Advanced Mathematics (99), Linear Algebra (92), Discrete mathematics (90)

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

- Self-built a NVIDIA Jetson TX2-based deep learning platform
- Provided a self-constructed dataset of China traffic signs
- Implement real-time traffic sign detection based on YOLO v3

PUBLICATIONS

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+)

PROJECTS

Structure-aware dehazing of sewer inspection images based on monocular depth cues

Aug 2021 - Jan 2022

tech: camera calibration, 3D vision, depth estimation, multi-task learning, coordinate attention

- Proposed a depth estimation method based on camera calibration and monocular cues
- Synthesized hazy images based on atmospheric scattering model with varying atmosphere light (0.6, 0.8, 1), 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

- Improved model performance to 147 (MSE), 27.28 (PSNR), 0.8963 (SSIM), and 15.47M (parameters)
- Applied SANL-Net to real world images, and high-level vision tasks achieved higher accuracy on those images

Domain-adaptive object detection with dehazing module

May 2022- present

tech: domain-adaptive, object localization, perceptual loss, joint training

- Utilized trained Faster-RCNN to train the dehazing net with the perceptual loss
- Proposed a Domain-adaptation module with instance-level and pixel-level domain classifier to implement consistency regularization
- Generalized the whole model to both hazy and clean scenes
- Boosted mAP to 49.51% on CitySpace and 41.01% on Foggy CitySpace, higher than other advanced methods

A software for automatic defect detection in sewers

Feb 2022 - July 2022

tech: React, Django, CSS, HTML, labelme, YOLO v5

- Built a software for automated sewer inspection, including data processing and deficit detection
- Provided a dataset for sewer deficit detection with 20912 images, including 8 classes
- Implemented sewer deficit detection based on YOLO v5

Fire detection of forest images based on deep learning methods

Mar 2021 - May 2021

tech: Faster-RCNN, R-FCN, YOLO v5

- Provided a dataset for fire detection
- Compared performances of different models on fire detection

A grid-background removal network based on domain transform

Jan 2020 - May 2020

tech: domain transform, Discrete Cosine Transform (DCT), ResNet

- Analyzed how domain transform contributed to grid processing
- Proposed a grid removal network utilizing DCT

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)

ACHIEVEMENTS

Academic Scholarship	2020 - 2021
Sailing Independence Award	2020
Advance Individual	2017 - 2019
Merit Student	2017 - 2019

OTHER EVENTS

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