Zhaoting Gong

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EDUCATION

School of Art and Design, Guilin University of Electronic Technology, China Sep 2019 - Jun 2021
Study in Digital Media Technology, GPA 83.1, rank 6 out of 61

School of Computer and Information Security, Guilin University of Electronic Technology, China Sept 2021 - Present
B.E. in Computer Science and Technology, GPA 86.1, rank 28 out of 309 (9%)

RESEARCH EXPERIENCES

Local Spatial Awareness Convolution for Light Weight Image Segmentation Sep 2022 - Jun 2023
Advisor: Prof. Zetao Jiang, Guilin University of Electronic Technology

- Manuscript: LightSeg: Local Spatial Perception Convolution for Real-Time Semantic Segmentation at Applied Sciences
  - Proposed a novel solution of a compact and efficient model named LightSeg for real-time semantic segmentation
  - Designed a module named LSPConv and related structures aiming at efficient feature extraction
  - Proposed a hierarchical feature decoding and fusion module for image segmentation
  - Applied model onto edge computing device (NVIDIA Jetson Series) with performance improvements

High-Precision Multi-scale Image Segmentation Nov 2021 - July 2022
Advisor: Prof. Zetao Jiang, Guilin University of Electronic Technology

- Manuscript: STDC-MA network for semantic segmentation at IET Image Processing
  - Conducted ablation experiment on multiscale feature aggregation and observations
  - Proposed a feature alignment module fixing pixel offset between high-level and low-level features
  - Proposed a hierarchical multiscale attention mechanism revealing the relationship among attention regions

Bi-Boundary Attention for Duo-Branch Segmentation | Guilin University of Electronic Technology Mar 2023 -Present

- Conducted sufficient survey on prevailing attention mechanism
- Conducted ablation research on various multi-branch CNN based image segmentation models
- Conducted research on the effectiveness of explicate edge features on spatial-wise attention and feature fusion
- Proposed a composite attention module for feature fusion between different network branches

Using frequency attention attacking target detectors | Guilin University of Electronic Technology Jan 2022 - Oct 2022
Advisor: Prof. Zetao Jiang, Guilin University of Electronic Technology

- Manuscript: Using Frequency Attention to Make Adversarial Patch Powerful Against Person Detector at IEEE Access
  - Proposed a novel approach that introduces frequency domain attention to optimize the attack capabilities of adversarial patches
  - Proposed a frequency-domain attention module for patch generation
  - Raises the patch's robustness when defending against adversarial attacks using JPEG compression technique

PROJECT EXPERIENCES

AI assisted driving information and security system | Team Leader Feb 2022 - Present

- Being responsible for launching and maintaining the project
- Designing both online and offline inference services using TensorRT, PyTorch and Flask
- Training and deploying semantic segmentation model for drivable area detection
- Designing a software level overclocking strategy as optimization for responding speed of sensors and control system

WORKING EXPERIENCES

Guangxi Key Laboratory of Image and Graphic Intelligent Processing | Research Assistant | Guilin Jul 2022 - Aug 2022

- Adapting convolutional neural network models onto TensorRT and Openvino platforms
- Developing and maintaining an illegal driving behavior detection service backend using dotnet
- Training and deploying target detection and depth estimation models for vehicle distance detection
- Being responsible for documentation and extensibility and technical maintenance

NTU Business AI Lab Internship Program | Research Intern | Team Leader | Singapore Aug 2023

- Research project on Instant Pneumonia Classification
- Achieved unconscious visualization of lesion location via attention accumulated on pixel gradients
- Being responsible for system effect demonstration and algorithm explanation for the final presentation
- Recognized for the only Winner Group of the research project

LEADERSHIP AND ACTIVITIES

Student Association of Science and Technology | School of Computer Science | Vice President Sep 2021 - Sep 2022

- Being responsible for adjusting training plans for various learning and development directions
- Launched a computer vision community for beginners named ml.akasaki and maintained related blogs
- Being responsible for drafting new association policies and coordinated discussions to finalize the document
- Chairing weekly meetings to handle administrative matters and feedback from members

Laboratory of Cloud and IoT | Guilin University of Electronic Technology | Project Leader Jun 2022 - Present

- Recruited 5 members from different major to maintain a project.
- Maintaining in an intelligent driving and auxiliary security project
  - Being responsible for fundamental construction of edge computing and control system software
  - Bring responsible for fundamental construction of interaction strategies between sensors and inference service
  - Proposed system optimization for the project with dynamic inference pipeline

AWARD AND HONORS

- National Second Prize in the 2020 China Collegiate Computing Contest Artificial Intelligence Innovation Contest (8 out of 2665)
- National First Prize in the 2021 China Collegiate Computing Contest Network Technology Challenge (13 out of 2000)
- National Second Prize in the 2021 China Students Service Outsourcing Innovation Entrepreneurship Competition (87 out of 6750)
- National Second Prize in the 2021 College Student Embedded Chip and System Design Competition (25 out of 2781)
- National Third Prize in the 2022 Intel Cup Undergraduate Electronic Design Contest – Embedded System Design Invitational Contest
- University Second-class Scholarship in 2021
- University Excellent Student Cadre in 2021 (50 out of all)

SKILLS

- Solid deep learning driven computer vision and machine learning experiment skills, familiar with PyTorch APIs
- Essential writing skills for composing research manuscripts and technical reports
- Long-term user of ArchLinux, with certain operation and maintenance capabilities
- Strong experiences using GIT for project collaboration and ability to work remotely
- Skills of backend software development using dotnet as well as random skills for maintaining static website
- Programming Languages: Python / C# / C++ / Java / Kotlin / TypeScript / SQL
- Standard English Tests: GRE: Verbal - 153, Quantitative – 163, Analytical Writing - 4.0
- TOEFL: Total 100 (Reading 27, Listening 25, Speaking 21, Writing 27)