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 & PUBLICATIONS

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
  - Developed 'LightSeg', an innovative and compact model for real-time semantic segmentation
  - Designed and built 'LSPConv', a module aimed at efficient feature extraction with related structures
  - Proposed a hierarchical feature decoding and fusion module for image segmentation
  - Applied model onto edge computing device (NVIDIA Jetson Series) and achieved 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 studies on multiscale feature aggregation and observations
  - Created a feature alignment module to correct pixel offsets between high-level and low-level features
  - Designed a hierarchical multiscale attention mechanism to reveal interconnections among attention regions.

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

- Conducted a comprehensive literature review on the most recent innovations in the attention mechanism
- Investigated the impact of explicit edge features on spatial-wise attention and feature fusion
- Proposed a novel composite attention module to facilitate feature fusion across 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
  - Pioneered a technique incorporating frequency domain attention to enhance adversarial patch attack capabilities
  - Devised a frequency-domain attention module tailored for patch generation
  - Improved patch robustness against adversarial attacks using JPEG compression technique

PROJECT EXPERIENCES

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

- Responsible for initiating and managing the project, designing both online and offline inference framework
- Training and deploying semantic segmentation model for drivable area detection
- Designing a software level overclocking strategy to optimize the response latency of sensors and the control system

NEETBOX | Maintainer Feb 2022 - Present

An essential tool for logging/debugging/tracing/managing/facilitating deep learning model training

- Logging and tracing based on decorators, integrated server and frontend for remote monitoring and managing
- Drop-in complement of tensorboard for PyTorch users

INTERNSHIP & WORKING

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

- Adapted convolutional neural network models onto TensorRT and Openvino platforms
- Developed and maintained an illegal driving behavior detection service backend using dotnet
- Trained and deployed target detection and depth estimation models for vehicle distance detection
- Responsible for comprehensive documentation, system extensibility, and technical maintenance

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

- Participated in a research project on Instant Pneumonia Classification
- Achieved unconscious visualization of lesion location via attention accumulated on pixel gradients
- Responsible for system effect demonstration and algorithm explanation for the final presentation
- Recognized as 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

- Led the adjustment of training plans for various learning and development directions
- Launched a computer vision community for beginners named ml.akasaki and maintained related blogs
- Drafted new association policies and coordinated discussions to finalize the documents
- Managed and chaired 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 majors to maintain a project.
- Maintaining in an intelligent driving and auxiliary security project
  - Responsible for fundamental construction of edge computing and control system software
  - Developed interaction strategies between sensors and inference services
  - 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 First Prize for 2023 Excellent Bachelor's Graduation Project (21 out of 5000)
- 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)