Jo-Ku Cheng

程若谷

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Education

22.09-Present **MSc**, *School of Mathematical Sciences, Peking University*, Major: Applied Mathematics

- Research Area: Intelligent Information Processing, Advisor: Professor Jinwen Ma
- Courses: Artificial Intelligence, Machine Learning, Artificial Neural Networks, Algorithm Analysis and Design, Machine Learning and Scientific Computing, Information Theory
- GPA: 3.65

18.09-22.07 **Undergraduate**, *School of Mathematical Sciences, Beijing Normal University*, Major: Mathematics and Applied Mathematics

- GPA: 3.2 CET-6: 557

Research Projects

21.12-22.7 Participated in an interdisciplinary research project and completed undergraduate thesis titled: ”Wild Animal Object Detection and Video Classification Based on YOLO Model”

- This project achieved automatic object detection and video classification of 17 species of wild animal targets based on the recordings collected from the Northeast China Tiger & Leopard National Park using various deep learning object detection models. This has saved a lot of manual data processing time for the research team at Beijing Normal University’s Tiger and Leopard Research Project.
- Main work: Fully participated in all stages of the research project. Collected and organized wild animal datasets from the Northeast China Tiger and Leopard National Park, including image and video data, and conducted data preprocessing and annotation. Constructed and trained the YOLOv5 model based on the PyTorch framework, and implemented wild animal target detection and video classification.

20-05-21.05 Participated in Beijing College Students Innovation and Entrepreneurship Plan Project titled: ”Risk Research and Assessment of Overseas Imported COVID-19 Cases in Guangzhou”

- Project used statistical methods to explore the relationship between overseas imported COVID-19 cases in Guangzhou and the epidemic situation in the source countries and to assess the risk of epidemic importation.

21.12-22.7 Participated in Beijing Universities Mathematical Modeling Campus Competition titled: ”Automatic Monitoring and Analysis of Mobile Phone Lens Industry”

- Project based on MatLab, segmenting the test area of mobile phone lens in the image by establishing optimization model and connected domain model, detecting the defect points on the lens, and realizing automatic monitoring and analysis of mobile phone lens.

Skills

Theoretical Foundations Proficient in mathematical theoretical foundations such as linear algebra and probability theory, experienced in mathematical modeling, adept in being able to apply mathematical theories to practical problems, and conduct modeling and problem-solving.

Programming Languages Proficient in Python, familiar with C/C++ programming languages, and experienced in using the PyTorch deep learning framework.

Computer Vision Possesses basic knowledge and practical experience in computer vision fields such as image processing, object detection, and image generation.

English Proficiency Excellent English reading and writing skills, capable of fluently reading technical papers.

Awards & Honors

2022 Ministry of Education Taiwan Student Scholarship - Graduate Third Class

2022 Outstanding Undergraduate Thesis of School of Mathematical Sciences, Beijing Normal University, Class of 2022

2021 Ministry of Education Taiwan Student Scholarship - Undergraduate Third Class

2020 Ministry of Education Taiwan Student Scholarship - Undergraduate Third Class

2020 Second Prize in Beijing Universities Mathematical Modeling Campus Competition

Publications

Tan M, Chao W, Cheng J K, et al. Animal Detection and Classification from Camera Trap Images Using Different Mainstream Object Detection Architectures[J]. Animals, 2022, 12(15): 1976.