Cathaoir Agnew

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SUMMARY

Ph.D. in Artificial Intelligence and Machine Learning, specialising in Computer Vision. With a strong academic background and hands-on experience in developing innovative AI solutions, I am passionate about leveraging state-of-the-art technologies to solve real-world problems. My journey from a BSc. in Financial Mathematics to an MSc. and Ph.D. in AI & ML has equipped me with a unique blend of analytical and technical skills, allowing me to excel in both research and practical applications. Committed to continuous learning and driven by a passion for problem-solving, I am eager to contribute to cutting-edge projects while continuously expanding my knowledge and skills in diverse AI applications.

EXPERIENCE

PhD Researcher

University of Limerick **September 2021 - Present，Limerick, Ireland**

- Conducted extensive research on the impact of ground truth annotation quality on computer vision performance, resulting in multiple scholarly publications
- Developed and optimised object detection and instance segmentation models for waste management applications, enhancing efficiency
- Mentored and supervised summer interns, enhancing their understanding of machine learning principles while fostering a collaborative and supportive research environment
- Delivered comprehensive instruction on machine learning and deep learning principles, managed computer laboratories and virtual learning platforms and assisted students in identifying and resolving coding issues
- Published and co-authored several scholarly outputs, contributing to the academic knowledge base in the field

Data Scientist

Fiserv **June 2021 - September 2021，Tipperary, Ireland**

- Conducted data analysis on financial transaction acceptance rates to identify trends and insights
- Developed interactive dashboards using Tableau to communicate findings to business stakeholders and support data-driven decision-making

PROJECTS

Vision AI

University of Limerick • www.amcsgroup.com/solutions/amcs-vision-ai/ • September 2021 - September 2023

- Conceptualised and transformed initial ideas into a fully functional product for an industry partner, addressing specific business needs
- Worked closely with a multidisciplinary team to gather data requirements and refine the computer vision system, ensuring alignment with project goals
- Collaborated with and educated the industry partner, maintaining clear communication to ensure their needs and expectations were met
- Conducted in-depth research into the specific tasks, exploring and applying cutting-edge techniques to optimise performance
- Achieved over 80% mean Average Precision (mAP) on the task of automated overfilled container management, with results published in a scientific journal article
- Achieved over 40% mAP on the task of automated contamination detection, with results published in a scientific journal article

EDUCATION

Ph.D. in Artificial Intelligence & Machine Learning

Minor in Computer Vision • University of Limerick • Ireland • 2024

- Thesis: The Effect of Annotation Quality on Computer Vision in Efficient Waste Management
- Published and co-authored multiple scholarly outputs contributing to the field's knowledge base

MSc. in Artificial Intelligence & Machine Learning

University of Limerick • Ireland • 2021

- Thesis: An Investigation into the Timed Up and Go Test Using Inertial Measurements with a Machine Learning Approach
- Core Modules: Text Analytics and NLP, Machine Vision, Artificial Intelligence and Machine Learning

BSc. in Financial Mathematics

University of Limerick • Ireland • 2020

- Thesis: Double Trouble? A Statistical Analysis of Child and Parental Outcomes Comparing Singletons to Non-Singletons
- Core Modules: Advanced Data Analysis, Optimisation, Computer Software 1/2, Probability Models, Time Series Analysis

SKILLS

Core Skills: Python, Deep Learning, Computer Vision, Statistical Analysis, Mathematics, Artificial Intelligence & Machine Learning, Neural Networks, Research & Development, Supervised Learning, Unsupervised Learning, Semi-Supervised Learning, Self-Supervised Learning

Libraries: PyTorch, Keras, Scikit-Learn, OpenCV, NumPy, Pandas, Matplotlib, SciPy, MMDetection, OpenMMLab, Open3D

Techniques: Image Classification, Object Detection, Instance Segmentation, Semantic Segmentation, Feature Engineering, Transfer Learning, Object Tracking, Data Augmentation, Convolution Neural Networks, Transformers, AutoEncoders, GANs, Diffusion Models, Siamese Neural Networks

Soft Skills: Analytical Thinking, Problem-Solving, Collaboration, Continuous Learning, Communication, Project Management