TANUT BUMRUNGVONGSIRI

AI ENGINEER

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PERSONAL SUMMARY

A fresh graduate with a strong passion for AI technology, I have gained six months of experience through an internship in the AI field. I have had the opportunity to apply machine learning and deep learning techniques through various academic projects. I am enthusiastic about taking on new challenges and continuously enhancing my knowledge and skills in this field.

EDUCATION

Bachelor's in Robotics and Automation Engineering
King Mongkut's University of Technology Thonburi
Institute of Field Robotics
GPAX : 3.74 / 4.00

(July 2020 - May 2024)

SKILL

TECHNICAL SKILLS

- Application Software: Intermediate - MATLAB, Simulink, Unity
- Robotics Framework: Basic - ROS2
- Database : Basic - MYSQL
- Programming Languages: Advanced - Python ; Intermediate - C, C++
- Experienced in Computer Vision, Image Processing and Deep learning techniques
- Frameworks : Pandas, OpenCV, PyTorch, Keras, TensorFlow, PyQT, Ultralytics, sklearn.
- Version control : Git

SOFT SKILLS

- Fast Learning
- Critical Thinking
- Adaptability and Flexibility
- Collaboration
- English communication
- Time Management

WORK EXPERINCE

AI Engineer & Software developer Internship at The Bangkok Unitrade Co., Ltd. |
June 2023 - november 2023
- Designed and adapted object detection for surgical instruments moving along a conveyor belt for classification, employing YOLOv8.
- Conducted research and applied a multi-view classification model to fine graind classify surgical instruments which utilizing data from three different camera perspectives achieving 99.4% accuracy on 44 surgical instrument classes.
- Developed a software application with a PyQt5 graphical user interface (GUI) for integrating a classification model for object detection and classification.
- Implemented logging functionality to record prediction in a MySQL database.

PROJECTS

Deep Learning-based Navigation for Mobile Robots in Dynamic Environments | May 2024
- Adapted TD3 and SAC deep reinforcement learning algorithms for mobile robot navigation in dynamic environments with moving obstacles in gazebo simulation.
- Utilized mathematics to group LiDAR clusters and track obstacles in each frame using the Hungarian Algorithm and Kalman Filter

Solve TicTacToe games using a Reinforcement Learning algorithm. | April 2024
- Applied reinforcement learning techniques to train an agent to play Tic-Tac-Toe using Q-learning, SARSA, and Double Q-learning.
- Compared the performance of result of Q-learning, SARSA, and Double Q-learning algorithms

Image Classification of Surgical Instruments | March 2023
- Utilized image classification model for surgical instrument recognition using data augmentation. Compared performance of fine-tuned ResNet-50 and VGG-16 models pre-trained on ImageNet.
- Optimized machine learning model performance by integrating the Attention Network mechanism with SEResNet50, enhancing the model's capability to focus on relevant features.
- Adapted fine-grained classification techniques like Bilinear Pooling and WSDAN (Weakly Supervised Data Augmentation Network) from research papers to enhance the classification model, achieving 98.5% accuracy on 4 surgical instrument classes.

Telemanipulation of Robot Hand using Human Gesture | November 2022
- Adapted the Mediapipe and OpenCV library to track and support 4 human gestures for control universal robot arm and gripper.
- Implemented socket-based communication between a client and server to enable telemanipulation over the network

Solve 8 puzzle and maze with AI | October 2022
- Designed and developed a software using pygame for solution utilizing the A* algorithm to efficiently solve the 8-puzzle game, which finds the minimum number of moves required to reach the goal state.
- Implemented an A* search algorithm with modifications to efficiently solve maze pathfinding problems.

Supervised learning machine learning | October 2022
- Utilized the Pandas and Scikit-Learn libraries to perform data analysis and preprocessing for the project
- Implemented machine learning techniques, specifically Logistic Regression and Random Forest, to train a classification model.
- Utilized decision matrix F1-score, acuracy and recall analysis to evaluate and compare the performance of the classification model

CERTIFICATION

- Certification in the online course Deep Learning for Image Classification by learn.thairobotics
- Certification in the online course Image Processing by learn.thairobotics
- Certification in the online course You Only Look Once (YOLO): Unified, Real-Time Object Detection by learn.thairobotics