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 **(July 2020 - May 2024)**
King Mongkut's University of Technology Thonburi
Institute of Field Robotics
GPAX : 3.74 / 4.00

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

The Bangkok Unitrade Co., Ltd. | June 2023 - november 2023
AI Engineer & Software developer Internship

- 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