Yi-Chi "Angela" Wu

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Research Interests

Artificial Intelligence, Robotics, and Computer Vision

- I am interested in developing and building AI-based Computer Vision applications on robots to identify objects and interact with the environment.

Computer Graphics

- I am interested in its use in digital photography and films.

Education

Rice University — Houston, TX
Master of Computer Science — *Aug. 2021 – Present*

- Currently taking: Algorithmic Robotics, Graduate Object-Oriented Programming and Design, Graduate Design and Analysis of Algorithms

National Taiwan University — Taipei, Taiwan
Bachelor of Science, Department of Atmospheric Sciences — *Sep. 2017 – Jul. 2021*

- Overall GPA: 3.80/4.30 (3.78/4.00)
- Last 60 credits: 3.96/4.30 (3.92/4.00)
- CS-related GPA: 3.95/4.30 (3.92/4.00)

University of California, Berkeley — Berkeley, CA
Summer Exchange, Department of Electrical Engineering and Computer Sciences — *Jun. 2019 – Aug. 2019*

- Overall GPA: 3.70/4.00

Research Experience

High-Speed Networks Labs, National Tsing Hua University — Hsinchu, Taiwan
Advisor: Nen-Fu "Fred" Huang, Distinguished Professor / Dean, College of EECS — *Jul. 2020 – Sep. 2020*

- Modified YOLOv3 Network to detect soybeans in videos and generated a self-labeled dataset.
- Utilized Pytorch to train a Convolutional Neural Network for soybean classification.
- Collaborated and developed in a UNIX terminal.

Project Experience

Graduate Object-Oriented Programming and Design | ***Java, JavaScript, react.js*** — Houston, TX
Oct. 2021 – Present

- Documented API specification documents that includes all the use cases, design decisions and how each interface or abstract classes can be used to implement all the functionality needed.
- Designed and implemented the frontend of a chat app with react.js.
- Designed and programmed the backend of a chat app and a Pac-Man game with design patterns such as MVC, singleton, factory, strategy and command design pattern.
- Conducted unit testing with over 90 percent of line coverage.

Algorithmic Robotics | ***C++, OMPL, Z3*** — Houston, TX
Oct. 2021 – Nov. 2021

- Fulfilled kinodynamic motion planning for pendulums and cars using OMPL with self-implemented planner RG-RRT.
- Conducted SAT task planning for Icy Path and Sokoban on Ice problem using Z3.

Applications of AI Neural Network Models | ***Pytorch, Jetson Nano*** — Taipei, Taiwan
Sep. 2020 – Jan. 2021

- Designed an app that generates music scores according to movie scenes in real-time using Convolutional Neural Networks and Bi-LSTM with PyTorch.

- Fulfilled fruit recognition with over 100 classes of fruits using deep Convolutional Neural Network.
- Performed real-time tasks on Jetson Nano.

Introduction to Computational Logic | ***Coq, NuSMV*** Taipei, Taiwan
Oct. 2018 – Jan. 2019

- Proved the Chinese Remainder Theorem with Coq.
- Built a NuSMV model to reconstruct the man-in-the-middle attack to the Needham-Schroeder authentication protocol.

NASA International Space Apps Challenge Hackathon | ***Unity, C#*** Taipei, Taiwan
Group: G. Melanolophus, Project: To the Cryosphere *Oct. 2018*

- Developed an Antarctica-themed survival game with Unity and C#.
- Analyzed and visualized data from NASA to support the proposed theses.

Work Experience

AndroVideo Inc. Taipei, Taiwan
Artificial Intelligence R&D Intern *Sep. 2020 – Feb. 2021*

- Constructed a Convolutional Neural Network with a spatial transformer network for facial expression recognition.
- Utilized TensorFlow to make a pull-up counter with pose estimation.

Presentation

NASA International Space Apps Challenge Hackathon Taipei, Taiwan
Topic: Solution to Polar Quest - To the Cryosphere *Oct. 2018*

- Presented the game and the scientific findings we got from examining the given data.

Relevant Courses

Compulsories

- Introduction to Computer Science, Discrete Mathematics, The Structure and Interpretation of Computer Programs, Data Structure, Digital Systems Design and Laboratory, Engineering Mathematics(I)-Linear Algebra, Probability and Statistics, Operating Systems, Computer Architecture, Formal Languages and Automata Theory, Graduate Object-Oriented Programming and Design, Graduate Design and Analysis of Algorithms

Electives

- C/C++ Programming, Introduction to Computational Logic, Introduction to Computer Networks, Computer Vision, Applications of AI Neural Network Models, Algorithmic Robotics

Skills

Programming Languages

- Python, C/C++, Java, Go, MATLAB, Fortran, JavaScript, HTML5, GrADS, C#, Verilog, Coq, NuSMV, LaTeX, RISC-V, MIPS

Operating Systems

- UNIX, macOS, Windows, xv6

Tools

- OMPL, PDDL, SAT Solvers, Unity, Docker, git, heroku

Languages

- Fluent: Chinese, English; Intermediate: French; Basic: Japanese, Korean

Test Scores

- TOEFL: 105/120 (L:30/30, R:29/30, W:24/30, S:22/30)
- GRE: 328/340 (Q:170/170, V:158/170, AW:3.5)

Leadership Experience

Technical Lead Houston, TX

Team WhatsUpp, Graduate Object-Oriented Programming and Design *Nov.2021 - Present*

- Kept track of the developing process.
- Built the skeleton code of the Pac-Man game.
- Made technical decisions for the Pac-Man game.
- Dissected parts of the program to assign work to the developers.
- Reviewed codes and implemented the missing features of the application.

Head Camp Counselor Taipei, Taiwan

NTU PPM X AS Orientation Camp *Mar. 2018 – Sep. 2018*

- supervised a group of 20 counselors.
- Organized an event with over 70 attendees.