Nam Nguyen

tnam02112001@gmail.com (626) 491-6208
linkedin.com/in/tnam-nguyen github.com/tnam02112001

Education

California Polytechnic State University, San Luis Obispo, California

M.S. **Computer Science** (expected March 2024) Starting January 2023

California Polytechnic State University, San Luis Obispo, California

B.S. **Computer Science** (expected December 2022) September 2019 - Present

3.98 Major GPA, 3.90 Overall GPA

Relevant Coursework: Data Structures, Objected-Oriented Programming, System Programming, Algorithms, Artificial Intelligence, Data Science, Linear Analysis, Statistics, Calculus, Knowledge Discovery from Data, Knowledge Based System, Computer Vision

Skills

Full Stack Development	HTML, Javascript, React.js, CSS, Bootstrap, Python, C, Java, MongoDB, MySQL, AWS, Restful API, Git, Travis CI
Machine Learning	PyTorch, TensorFlow, NumPy, Pandas, SciPy, Scikit-learn, Matplotlib
Computer Vision	Torchvision, OpenCV
GIS / Remote Sensing	ArcGIS Pro, ArcGIS Python API, QGIS, GDAL, Rasterio

Professional Experiences

Computer Vision Research Assistant

May 2022- Present

Advisor: Professor Jonathan Ventura, Cal Poly Dept. of Computer Science & Software Engineering

- Worked with Professor Jonathan Ventura to build a pipeline of creating dynamic virtual reality environments from 360-degree videos taken by smartphones
- Developed an auto-exposure technique to address exposure fluctuation due to luminance changes in 360-degree video scenes
- Introduced motion-based parameter estimation to the preexisting spherical structure-from-motion (sfm) codebase to output a high-quality spherical structure from 360-degree videos.
- Introduced a spherical parameterization to the Pytorch's implementation of Neural Radiant Fields (NeRF) to generate novel view of 360-degree scenes
- Extracted volumes of objects from a trained Neural Radiant Fields (NeRF) model to perform virtual reality real-time rendering of 3D scenes

Undergraduate Research Assistant

September 2021- Present

Advisor: Professor Jonathan Ventura, Cal Poly Dept. of Computer Science & Software Engineering

- Collaborated with a team of professors and a graduate student to build a machine learning model to automatically segment eelgrass extent from high-resolution drone images of Morro Bay
- Used ArcGIS Pro to build training data for deep learning from labeled raster datasets
- Successfully trained the PyTorch DeepLab v3 ResNet50 semantic segmentation model in Pytorch for annotating eelgrass extents
- Wrote inference script to run the DeepLab v3 semantic segmentation model on large raster datasets

- Consistently obtained high accuracy, recall, precision, and F1 score when evaluating model performance on drone images of Morro Bay from different years
- Communicated closely with the Morro Bay National Estuary Program to obtain ground-truth surveying results, and model deployment results
- Assisted in building figures and writing papers for highly selective journal publications.
- Wrote grant applications and twice awarded funding for the research through the Frost Research Program

Projects

3D Tic-Tac-Toe AI Agent (Python) August 2021

- Implemented an AI agent to play 3D Tic-Tac-Toe using Monte Carlo Tree Search Algorithm
- Optimized the agent by selecting appropriate hyperparameters, including exploration bias and rewards

Mongo Snake (React.js, HTML, CSS, Bootstrap, MongoDB, Python, Git) March 2021

- Led a team of 3 students to develop an interactive Snake Game that supports real-time leaderboard, difficulty settings, skin settings, and upgrade options
- Learned and followed the Agile software development cycle, including team-based planning and UI designing in Figma, sprint planning and version control in Github, and continuous integration in TravisCI
- Developed a restful API in Flask that handles HTTP requests between the Frontend interactive environment and the Backend database collection
- Set up a MongoDB database collection to store all the players' records, including names and high scores

Unix C Shell (C, Bash) May 2020

- Learned about pipelining and system calls to build a shell in C supporting Unix commands, redirection, and pipes
- Developed an effective test suite and learned to write bash scripts to run all tests with a single command

Mustang Mayhem (Java) March 2020

- Worked closely with my teammate to build a 2D endless-arcade game from scratch in one week
- Followed good object-orientated programming techniques when designing and implementing the project
- Implemented Dijkstra's path finding algorithm for the villain to constantly catch the main player
- Used Adobe Creative Suites to design the game environments and entities
- Successfully demoed the project by making gameplay videos

Extracurricular Activities

Tech Assistant - Cal Poly SLO Hacks September 2021 – June 2022

- Develop main event website for SLO Hacks' 300 students' flagship hackathon
- Collaborated with other club members to plan events and activities
- Hosted workshop about building a virtual assistant during SLO Hacks' flagship hackathon in Winter 2022

Awards

Frost Academic Years Award – Spring Quarter 2022 May 2022

- Awarded to a student with great contributions to undergraduate research projects during the academic year

2022 Frost Undergraduate Summer Research Award June 2022

- Awarded to a student that participated in the 2022 Frost Undergraduate Summer Research Program