FRANZ ANTHONY VARELA

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EDUCATION

University of Washington, Bothell **Bothell, WA**
*M.S. in CS&SE (**GPA:3.80**)* *Expected Graduation Date: June 2022*
- **Relevant Coursework**: Machine Learning | High Performance Computing | Advanced Computer Graphics | Advanced Topics in Computer Vision

University of California, Merced **Merced, CA**
*B.S. in CS&E (**GPA:3.82**)* *Aug 2017 - May 2020*
- Graduated with High Honors
- **Relevant Coursework**: Deep and Reinforcement Learning | Software Engineering | Numerical Methods | Database Systems | Computer Architecture | Linear Analysis | Algorithm Design and Analysis | Object-Oriented Programming

TEACHING AND MENTORING EXPERIENCE

The Math Center **Merced, CA**
Remedial Tutor *Sept 2019 - Aug 2020*
- Tutor university students in a wide range of courses (e.g. Calc. I-III, Lin. Alg, etc.)
- Deepen their understanding of mathematical concepts by teaching the material in different ways
- Offer remote learning options, such as Discord or Zoom

Summer Bridge Program **Merced, CA**
Workshop Co-Host *July 2020 - Aug 2020*
- Host an hour-long weekly workshop for incoming freshmen at UC Merced over Zoom (2 groups of 25 students each)
- Provide assistance in adjusting to college courses, advices on succeeding in their programs, and encourage them to be proactive

TECHNICAL SKILLS

- Languages: C++, C#, C, Python, Java, SQL, LaTeX
- Technologies/Environments: Linux (Ubuntu Subshell), Windows, Jupyter Notebook, Git, SciKit-Learn, TensorFlow (2.0), PyTorch, OpenGL, Blender, Processing 3, Arduino, Android SDK, Sqlite3, Unity, Aseprite, FL Studio, CUDA, OpenCV

RESEARCH EXPERIENCE

"2-Dimensional Online Scheduling" **Merced, CA**
Undergraduate Researcher *Jul 2019 - Aug 2019*
- Assisted Prof. Sungjin Im in his research on developing a new framework for analyzing low dimensional online scheduling problems, specifically in the 2-Dimensional setting
- Created algorithms in C++, and performed multiple analyses on the runtime of the implementation
- Provided insight into the challenges, limitations, and correctness of the Priority(Max) algorithm with our implementation

PROJECTS

Multiclass AdaBoost Ensemble **Merced, CA**
Project Contributor *Oct 2019 - Dec 2019*
- An implementation of the Multiclass AdaBoost decision forest in a group of 3 other students
- Implemented using Python and Jupyter Notebook, as well as analyzed our model's accuracy and runtime against SciKit-Learn's benchmark on benchmark datasets
- Achieved a 97% test accuracy on the MNIST dataset

NEAT with OpenAI Gym **Merced, CA**
Solo Developer *May 2020*
- Implemented the *NeuroEvolution of Augmenting Topologies* (NEAT) algorithm using Python and a variety of RL environments by Gym (e.g. CartPole-v1, BipedalWalker-v2, MsPacman-v0, etc.)
- Created the genome networks from scratch, as well as developed a unique forward propagation algorithm to support the evolution of new connections and nodes
- Successfully solved the CartPole-v1 environment in an average of 307.42 evaluations across its 33 trials

FakeFaces Detection
Lead Developer *Sep 2020 - Dec 2020*
- Collaborated with 2 other members to create a model trained on the $140k$ *Real and Fake Faces* dataset from Kaggle for binary classification
- Lead the majority of the model development; implemented the CSNN in Python with TensorFlow 2.0
- The CSNN model attained a 97.77% on the test set

AWARDS

- Calvin E. Bright Engineering Scholarship