Joseph Aaron Gene Diaz

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Education

- **San Diego State University** San Diego, CA
  Master of Science in Applied Mathematics; GPA: 3.725 *Jan 2021 – Aug 2022*
  Thesis title: A Study on Quantifying Effective Training of DLDMD
- **San Diego State University** San Diego, CA
  Bachelor of Science in Applied Mathematics; GPA: 3.71 *Aug 2018 – Dec 2020*

Programming Skills

- **Languages**: Python, Java, C/C++ **APIs**: Numpy, Git, Matplotlib, Scipy, Pandas, TensorFlow, Numba

Experience

- **San Diego State University** San Diego, CA
  Graduate Teaching Assistant *Aug 2019 - Aug 2022*
  - **Teaching**: I wrote interactive code lectures that utilized the Python and markdown features of Jupyter Notebooks to provide supplementary instruction in a course on introductory Python programming, data analysis, visualization, and the employment of Python packages such as Numpy, Scipy, Pandas, and Matplotlib.
  - **Tutoring**: I coached my students in any foundational material that was necessary to understand the course content and fill any gaps in knowledge.
  - **Automated Grading**: I made use of the Unit Test class in python to program an automated homework grader on the Gradescope online grading platform.
- **San Diego State University** San Diego, CA
  Student Researcher *Jan 2019 – May 2022*
  - **Machine Learning**: I experimented with neural network architectures in the TensorFlow API to create models to approximate statistical functions and predict future states of dynamical systems.
  - **Data Visualization**: I implemented statistical methods from the statistics submodule of Scipy and Matplotlib to represent and visualize the evolution of Machine Learning models as training takes place with the goal of quanitfying good training when standard metric are unavailable.
- **Cryogenic Exploitation of Radio Frequency (CERF) Lab** San Diego, CA
  Data Analyst/Scientist *May 2021 – Nov 2021*
  - **Automation**: I used the Socket API in Python to create interfaces for electronic lab equipment to automate the running of experiments and data collection.
  - **Web Programming**: I assisted in the creation of web-based applets for data visualization and analysis by utilizing Python implementations of the QT, Dash, and Streamlit interfaces.

Projects

- **Thesis and future work**: My Masters thesis was on quanitfying machine learning training via statistical methods and I am working on a general python toolkit for the relevant analysis and a full scientific publication with my research advisor Christopher Curtis.
- **Professional webpage**: I am currently working on a webpage hosted on GitHub that uses Streamlit and Javascript to exhibit all of my research, interactive examples of my teaching work and research methods, and my professional profile.

References

- **Christopher Curtis**:
  Professor of Mathematics at SDSU
  ccurtis@sdsu.edu
- **Nicholas Ferrante**:
  Research Scientist at the Naval Information Warfare Center - CERF lab
  (619) 820-0438 - ferrante@niwc.navy.mil
- **Daniel Jay Alford-Lago**:
  Research Scientist at the Naval Information Warfare Center - Atmospheric Propagation Branch
  (619) 553-1426 - daniel.j.alford-lago.civ@us.navy.mil