# Matthew Portman, Ph.D.

## Contact

Email:-
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GitHub:-
github.com/
MatthewPortman

## Programming Experience

Python • C++ • SQL •
MATLAB • Bash • Unix •
SLURM • OpenMP •
MPI • CUDA • Git •
GitHub Workflows •
CI/CD • Docker • AI/ML•
Pytorch • CNN • Deep
Learning • XGBoost

## Education

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|---|---|---|
| 2017−2024 | Ph.D. in Computational Science<br>San Diego State University & University of California, Irvine | GPA: 3.78 |

- Dissertation: "Using SpArcFiRe to Automate GALFIT's Multi-Component Decomposition of Spiral Galaxies"

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|---|---|---|
| 2012−2016 | B.S. in Physics<br>University of Texas at Dallas | GPA: 3.65 |

## Research Experience

**2019−2024**   **Research Assistant** under Dr. Wayne Hayes     University of California, Irvine
*Modeling Spiral Galaxies*

- Developed the GalfitModule an object-oriented, distributed framework to automate the modeling of thousands of spiral galaxies within minutes.
- GalfitModule, written in Python, incorporates parallelization (SLURM, Joblib), visualization (Plotly, Seaborn), and regression via machine learning (XGBoost).

**2021, 2022**   **Graduate Intern** under Drs. Pete Anninos & Rob Hoffman     LLNL
*Binary Accretion Simulation*

- Developed a test bed in Python to perform high-fidelity neutron star simulations with C++ using high performance computing.

**2021−2022**   **Visiting Scholar** under Dr. Antonella Palmese     DESI
*Multi-Messenger Astronomy*

- Developed a software pipeline to filter millions of observations via SQL and correlate astrophysical events via machine learning.

**2017−2019**   **Research Assistant** under Dr. Fridolin Weber     San Diego State University
*Neutron Star Simulation*

## Work Experience

**2019−2024**   **Teaching Assistant**     University of California, Irvine
*Intro and Intermediate Python*

**2017**   **Adjunct Faculty**     Collin County Community College
*Mathematics Professor*

## Highlighted Publications and Awards

**2024**   **Automated Multi-Component Decompositions of Spiral Galaxies**     Under Review
M. Portman and W. Hayes.

**Sept. 2023**   **A Re-Assessment of SpArcFiRe's Performance on Toy Spiral Galaxies**     MNRAS
M. Portman and S. Mesforoush and W. Hayes.

**2021−2023**   **LSSTC Data Science Fellow**     LSST-DA
Award granted to supplement data science instruction in Astronomy.

**2021**   **URA Visiting Scholar Program/Award**     Fermilab
Award granted to perform collaborative research with Fermilab.

**2020**   **DTEI Summer Fellowship**     University of California, Irvine
Award granted to undertake equity-based pedagogical instruction.

**2019, 2021**   **Proceedings: ACCESS Conference**     San Diego State University
Poster presentation of research performed under Dr. Wayne Hayes.