Amaya **Andrews**

Developer & Designer

(Formerly Sydney Andrews)

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Education

2022 **M.A. in Illustration** Academy of Art University
2019 **M.A. in Physics and Astronomy** from Stony Brook University
2017 **B.Sc. in Physics with Astrophysics** from New Mexico Institute of Mining and Technology
2017 **B.Sc. in Mathematics** from New Mexico Institute of Mining and Technology

Skills

Design	**Adobe Photoshop**, **Adobe Illustrator**, Adobe InDesign, Procreate, Adobe Animate, Figma
Development	**HTML**, **CSS**, **JavaScript**, **Python**, Fortran, C, Rust, Bash, R, MatLab, Go
Environments and Tools	**Linux**, **git**, **Atom**, **vi**, Windows, Mac, Microsoft Excel, LaTeX
High Performance Computing	**Parallel algorithms**, OpenMP, OpenACC
Computational Methods	**Finite Difference**, **Sparse Matrix Linear Algebra**, Direct and Iterative Methods

Professional Experience

August 2020 – November 2019
Elyah Software LLC | Quantum Software Engineer, Tokyo Office, Tokyo, Japan
- Core-algorithm and matrix library development for a web based quantum simulator back-end
- Developed front-end user manual `https://www.elyah.io/documentation`.
- Quantum algorithm research in graph coloring and unstructured search

Linux | git | Atom | HTML | Rust | Python | QASM | Back-End Development | Front-End Development | Algorithms

September 2019 – September 2018
Krell Institute | Computational Science Graduate Fellow, DOE, New York, USA
- Conducted computational physics research on core-collapse supernovae using HPC
- Data analysis and paper preparation
- Graduate coursework in Computer Science (Computer Architecture, Parallel Programming)

Linux | git | Fortran | Python | High Performance Computing | Matrix Operations | OpenMP | OpenACC

August 2018 – May 2018
Stony Brook University | Graduate Research Assistant, Physics Department, New York, USA
- Conducted computational physics research in core-collapse supernovae
- Optimized size nuclear reaction networks for result accuracy and computational feasibility
- Code comparison between home-grown and existing nuclear reaction networks

Fortran | Python | High Performance Computing | Matrix Operations | OpenMP | OpenACC

January 2019 – May 2014
Los Alamos National Laboratory | Student Researcher, T-CNLS, New Mexico, USA
- Code development and testing of nuclear reaction network framework
- Alteration of existing and legacy codes
- Data analysis for paper preparation

Fortran | Python | High Performance Computing | Matrix Operations | MPI

May 2014 – May 2013
Los Alamos National Laboratory | Student Researcher, C-NR, New Mexico, USA
- Literature review on chemical condensation during planet formation
- Began design of numerical model for applications in post detonation nuclear forensics
- Prepared academic report for the division

Matlab | Literature Review | Radiochemistry | Planetary Astrophysics

Conferences, Collaboration Meetings, and Summerschools

International High Performance Computing Summer School, Kobe, Japan 2019

https://ss19.ihpcss.org/
Attended lectures on HPC concepts and applications. Participated in hands-on learning sessions on Open ACC and Machine Learning. Presented research related to HPC to peers and mentors in a virtual poster session.

HPC | Open ACC | Machine Learning

American Astronomical Society 229th Meeting 2017

https://aas.org/meetings/aas229
Attended talks and participated in poster session for work entitled *The Nucleosynthetic Yields of Core-Collapse Supernovae*.

Poster Presentation | Supernovae

NuGrid Collaboration Meetings 2015-2017

https://nugrid.github.io/
Participated in the development and testing of a parallel nuclear network framework to post process spherically symmetric yields from core-collapse supernovae.

Code Testing | Nucleosynthesis

Publications

2019 **Andrews, S.**, Fryer, C., Even, W., Jones, S., Pignatari, M., Heger, A. Uncertainty in Explosive Yields of Core-Collapse Supernovae and the Next Generation of Gamma-Ray Telescopes. ApJ 890, 35.

2017 Fryer, C., **Andrews, S.**, Even, W., Heger, A., Safi-Harb, S. Parameterizing the Supernova Engine and its Effects on Remnants and Basic Yields. ApJ 856, 63.

Honors and Awards

2018 United States Department of Energy **Computational Science Graduate Fellowship** (CSGF)
2016 Sigma Pi Sigma Physics Honor Society
2014 New Mexico Tech Scholar
2013 New Mexico Institute of Mining and Technology Honors Student (all semesters in attendance)
2013 Phi Theta Kappa International Honor Society and Scholarship

Outreach and Volunteering

2019 Amateur Observers Society of New York Guest Speaker
2019 Stony Brook University Astronomy Open Night Speaker
2015 New Mexico Science Olympiad Meteorology Event Supervisor
2014 New Mexico State Science Fair Junior Physics and Astronomy Judge

Teaching and Mentoring

May 2018 – August 2017 | **Stony Brook University | Graduate Teaching Assistant, Physics and Astronomy Department,**

- Assisted in the instruction of PHYS 517 : Observational Techniques in Astronomy
- Assisted students in astronomy lab with use of telescope, CCD, etc. and graded lab reports.
- Assisted in the instruction of AST 203 : Astronomy
- Lead recitation sessions, proctored exams, graded assignments and exams, and held office hours
- Created course material such as python tutorials

Python | Teaching | Telescopes | Grading

May 2017 – August 2016 | **New Mexico Institute of Mining and Technology | Teaching Assistant, Physics Department,**

- Assisted in the instruction of PHYS 241 & 242 Computational Mechanics I & II
- Lectured for review sessions and proctored exams
- Assisted students in python computational lab exercises
- Graded assignments and lab reports

Python | Teaching | Grading