# Amaya **Andrews**

Software Engineer

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## Education

2020 - 2022 **M.A. Illustration** Academy of Art University
2017 - 2019 **M.A. Physics and Astronomy** from Stony Brook University
2013 - 2017 **B.Sc. Physics (with Astrophysics Option)** from New Mexico Institute of Mining and Technology
2013 - 2017 **B.Sc. Mathematics** from New Mexico Institute of Mining and Technology

## Skills

**Programming** **Python**, **Rust**, **C**, **JavaScript**, **Typescript**, Fortran, HTML, CSS, SQL, React, Matlab, Bash, R
**Environments** **Linux**, **VSCode**, **git**, **Atom**, **vi**, Windows, Jupyter Notebook
**Algorithms** **Finite Difference**, **Sparse Matrix Linear Algebra**, Direct and Iterative Methods
**HPC** **Parallel algorithms**, MPI, OpenMP, OpenACC
**Design** **Figma**, **Adobe Photoshop**, **Adobe Illustrator**, Adobe InDesign, Procreate

## Professional Experience

11/2022 - Present
**Kasugai Inc | Data Engineer, Product Development, Nagoya, Japan**
- Lead UI/UX designer for business diagramming web application products.
- Front End development and testing for single page web applications.
- Responsive design and development on a team with diverse backgrounds.

UI/UX | Figma | React | Typescript | Jest

11/2019 - 8/2020
**Elyah Software LLC | Quantum Software Engineer, Tokyo Office, Tokyo, Japan**
- Core-algorithm and math 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.

Rust | Python | HTML | Linux | git | Atom

9/2018 - 9/2019
**Krell Institute | Computational Science Graduate Fellow, DOE, New York, USA**
- Conducted computational physics research on core-collapse supernovae using HPC.
- Code comparisons for nuclear reaction network optimization.
- Graduate coursework in Computer Science (Computer Architecture, Parallel Programming).

Python | Fortran | C | OpenMP | OpenACC | HPC | Linux | git

5/2014 - 1/2019
**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 | HPC | MPI

5/2013 - 5/2014
**Los Alamos National Laboratory | Student Researcher, C-NR, New Mexico, USA**
- Literature review on chemical condensation during planet formation .
- 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

8/2017 - 5/2018 | **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

8/2016 - 5/2017 | **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