# Corbin Taylor

Software Development Engineer and Astrophysicist

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**GitHub**: https://github.com/cjtaylor1990

## Skills

- **Front-End Technologies**: JavaScript (React, Redux, React Query, Jest, Cypress), Ruby, HTML, CSS

- **Back-End Technologies**: Java (Spring, JUnit, Mockito), Python, C++, C, SQL, MongoDB

- **Cloud Technologies**: AWS (DynamoDB, S3, EC2, Lambda), Docker, Kubernetes

- **Operating Systems, Servers, & Networking**: Bash, Zsh, Shell scripting, Linux, OS X, Nginx

- **IDEs & Editors**: VS Code, IntelliJ, PyCharm, Vim

- **Leadership & Communication**: Project planning, task delegation, collaborative problem solving, public speaking, and mentoring.

## Work Experience

**Amazon Web Services - AWS Security**                                          Jun 2020 - Present
*Software Development Engineer I*

- Developed and maintained an internal Tier-1 service used by tens-of-thousands of AWS employees to manage one million active accounts.
- Contributed to the development and testing of a single-page web React-Redux application, as well as to the Java and SQL backend.
- Initiated and led cross-team efforts to raise the security bar, including migrating an auditing tool (written in Python) to native AWS.
- Raised the security bar by writing design recommendations for the handling of mission-critical cryptography.
- Raised the code quality and availability bar by pushing for continuous improvement of unit and integration test coverage.
- Technical coordinator and advisor for collaboration between my service team and security auditing teams.
- Participated in the on-call rotation, root-causing and mitigating problems in a high-pressure environment.

**University of Maryland - Department of Astronomy**                            Jun 2014 - Jun 2020
*Graduate Research Assistant*

- Researched the properties of supermassive black holes and the Milky Way using computer simulations.
- Independently wrote scientific simulation and analysis software using Python and C++.
- Utilized SciPy and NumPy libraries to manipulate and analyze large data sets (up to 1 Tb) on the Deepthought 2 (U of Maryland) and Odyssey (Harvard) supercomputers.
- Used algorithmic thinking and creative problem solving to maximize program efficiency, decreasing both run-time and memory usage by up to a factor of 1,000 for 10 billion entries.
- Presented my work at 12 professional conferences and universities in the US and Europe.

## Leadership Experience

**AWS Summer Software Development Internship**                    May 2022 - Aug 2022
*Lead Mentor*
- Led meetings with software development intern 3 times per week where I would work to disambiguate goals, define action items, and develop Agile strategies to deliver results.
- Helped intern onboard to my team's tech stack and familiarize themselves with the internal AWS ecosystem.
- Gave constructive feedback to helped the intern's professional development and overcome initial setbacks.

**GRAD-MAP Diversity Program**                    May 2014 - Aug 2017
*Team Member*
- Led the preparation and teaching of a multi-day Python workshop.
- Helped prepare and manage week-long research workshops that helped minority students develop skills necessary for a STEM career.
- Collaborated with minority-serving universities and colleges in Maryland, Virginia, and D.C.

**University of Maryland - Department of Astronomy**                    Jan 2017 - Apr 2017
*Prospective Student Visit Coordinator*
- Led the preparation and execution of departmental visits for 19 potential Astronomy graduate students.
- Recruited, led, and delegated tasks to a planning committee of 10 graduate student volunteers.
- Successfully increased new graduate student recruitment rate by over 30% compared to previous years.

**University of Maryland - Department of Astronomy**                    Aug 2013 - May 2014
*Graduate Teaching Assistant*
- Led 50 minute discussions with hands-on demonstrations for two sections once a week with an average of 20-30 students per section.
- Mentored struggling students during and outside of my weekly office hours.
- Graded homework, in-class assignments, and exams in a fair and timely manner.

## Education

**University of Maryland**                    College Park, MD
*Ph.D. Candidate Astronomy & M.S. Astronomy*                    *2013-2021*
- Created and analyzed computer simulations of black holes and galaxy formation.

**University of Toledo**                    Toledo, OH
*B.S. Astrophysics & B.S. Pure Mathematics*                    *2008-2013*
- Cumulative GPA: 3.81
- Graduated Magna Cum Laude with Physics Departmental Honors

## Select Publications

- Taylor, C. and Reynolds, C.S. 2018b; *X-Ray Reverberation From Black Hole Accretion Disks With Realistic Geometric Thickness*, ApJ, 868, 109
- Taylor, C. and Reynolds, C.S. 2018a; *Exploring The Effects of Disk Thickness On The Black Hole Reflection Spectrum*, ApJl, 855, 120
- Taylor, C.; Boylan-Kolchin, M.; Torrey, Paul; Vogelsberger, Mark; and Hernquist, Lars 2016; *The Mass Profile Of The Milky Way To The Virial Radius From The Illustris Simulation*, MNRAS 461, 3483
- Taylor, C.J.; Richey, A.M.: Federman, S.R.; and Lambert, D.L. 2012; *The $^{7}Li/^{6}Li$ Isotope Ratio Near The Supernova Remnant IC 443*, ApJ 750 L15.