

Avery Reyna

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EDUCATION

University of Central Florida

Bachelor of Science in Social Sciences (GPA: 3.85 / 4.0)

May 2023

Orlando, FL

WORK EXPERIENCE

Capital One

Software Engineer

August 2023 – Present

McLean, VA

- Upgraded a file upload tool by translating a Python validation script into a Java codebase and integrating real-time error feedback with Angular, slashing processing time by 2 hours while eliminating all instances of duplicate uploads
- Integrated GitHub Copilot into Jest testing suites, enhancing the efficiency of writing UI component tests for an internal application which resulted in a 30% reduction in development time and 50% increase in test coverage
- Optimized a hashing algorithm in Java that detects duplicate emails across the company, streamlining the onboarding process for the entire 2024 intern class and decreasing critical HR-related inquiries by 10%
- Resolved critical issues in Amazon Connect related to entitlement metadata, work item popups, and authorization requests, overcoming roadblocks for developers worldwide and boosting system reliability by 30%
- Utilized React and TypeScript to render editable spreadsheets from imported Excel files onto a remediation platform which improved the workflow of the offensive security team to track, assign, and export penetration test checklists

ActBlue

Data and Reporting Intern

September 2022 – August 2023

Somerville, MA

- Collaborated with the Developer Experience team to analyze existing workflows within HubSpot and found opportunities to automate processes using Python and the Hunter.io API leading to a 75% reduction in data entry
- Led an audit of an internal fundraising data tool by conducting user studies, proposing redesigns, and writing feature documentation which increased user satisfaction by 25% and reduced data errors by 15%
- Conducted an independent machine learning project that analyzed the impact of various donation patterns on election outcomes across the United States in 2022, utilizing Python, NumPy, and XGBoost, achieving high accuracy rates

RESEARCH EXPERIENCE

UCF School of Politics, Security, and International Affairs

Undergraduate Researcher

January 2022 – May 2023

Orlando, FL

- Developed a novel data and machine learning-based early warning forecasting platform that estimates the monthly risk of illegal leadership turnover and overthrows of government for 201 countries across the globe
- Designed and implemented data pipelines using Pandas and NumPy that transformed raw coup data into visualizations that were used for internal reports and articles for online publications with over 500k readers a year
- Utilized data collected from 500 coup events to exhibit that qualitative attributes, such as whether the current regime came about due to a coup, exercise pronounced impacts on coups independent of how recent the last coup was

Columbia University

Visiting Undergraduate Researcher

June 2022 – August 2022

New York, NY

- Led frontend development with React.js, TypeScript, and Material UI to build clean, interactive, and accessible user interfaces for projects across the lab dedicated to building new interactive technologies and tools for disabled users
- Designed and conducted nine usability studies of two web applications that help blind and low-vision users consume and produce web content on unknown desktop user interfaces via audio spatialization and directional navigation
- Created a mobile application with React Native and Socket.io for a 20-person study that discovered new categories of assistive technologies that can create connection between sighted and blind and low-vision users in exploration

- Qualitatively coded 50,000 Instagram direct messages to create an ecologically valid dataset using human-centered design principles to provide insight into teens' social media interactions and train models to detect online risks
- Conducted a literature review analyzing 73 peer-reviewed articles on computational approaches utilizing text or meta-data for online sexual risk detection, identifying three types of sexual risk detection present in the literature
- Led an independent machine learning project that comparatively analyzed two text summarization models in order to test its perceived utility for data annotation and qualitative analysis of large datasets more broadly

University of Washington Tacoma*Visiting Undergraduate Researcher*

June 2021 – August 2021

Seattle, WA

- Used tools of computational topology, statistics, and machine learning to discover communities of interest for fair representation in political redistricting and better legislation for marginalized groups in the United States
- Developed data pipelines using Python, Pandas, and NumPy to specify parameters for algorithms, add flags to imported datasets based block group clusters, and calculated summary statistics for each detected political district
- Led Singular Value Decomposition analysis efforts by engineering Python scripts on a 13-variable dataset to better understand how much variance was captured by every Principal Component being drawn along each axis

PUBLICATIONS

Yuanyang Teng, Connor Courtien, David A. Rios, Yves M. Tseng, Jacqueline Gibson, Maryam Aziz, **Avery Reyna**, Rajan Vaish, and Brian A. Smith. "Help Supporters: Exploring the Design Space of Assistive Technologies to Support Face-to-Face Help Between Blind and Sighted Strangers." *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24)*.

Arnavi Chheda-Kothary, David A. Rios, Kynneddy Simone Smith, **Avery Reyna**, Cecilia Zhang, and Brian A. Smith. "Understanding Blind and Low Vision Users' Attitudes Towards Spatial Interactions in Desktop Screen Readers." *Conference on Computers and Accessibility (ASSETS '23)*.

TALKS AND PRESENTATIONS

Alexis Wood, **Avery Reyna**, Aya Konishi, David Retchless, and Jim Thatcher. "Cartographic Limits and Interdisciplinary Science: Maps and Mathematics in Pursuit of Social Justice." *North American Cartographic Information Society 2022*.

Jonathan Powell and **Avery Reyna**. "Legacies of Instability: Military Coups and Regime Consolidation in the Modern World." *International Studies Association 2022*.

Avery Reyna, Ashwaq Alsoubai, and Pamela Wisniewski. "Comparative Analysis between TextRank and LexRank: Testing Utility of Text Summarization Models for Data Annotation." *Student Scholar Symposium 2022*.

Carlson Sharpless, Komila Khamidova, **Avery Reyna**, Afsaneh Razi, and Pamela Wisniewski. "Adolescent Online Safety: Expanding the Knowledge Base and Developing Machine Learning Algorithms." *Showcase of Undergraduate Research Excellence 2021*.

WRITING

Avery Reyna. "The Threat of Artificial Intelligence Is Not Just Real, It's Here." March 29, 2023. *The Loop: The ECPR's Political Science Blog*.

Avery Reyna. "Interdisciplinary Social Science and the Limits of Quantitative Research." October 25, 2022. *The Loop: The ECPR's Political Science Blog*.

Salah Ben Hammou and **Avery Reyna**. "Anti-Coup Strategies Should Address Civilian Coup Allies." July 20, 2022. *Just Security*.

Avery Reyna and Salah Ben Hammou. "Reflecting on Coup Risk in Mali." June 14, 2022. *Political Violence at a Glance*.

Avery Reyna. "Integrated Data in the United States: A Look at New York's Workforce Portal." May 13, 2022. *New America*.

AWARDS AND HONORS

Undergraduate Research Scholarship <i>UCF Office of Undergraduate Research</i>	2022
The Laassel Family Political Science Endowed Scholarship <i>UCF School of Politics, Security, and International Affairs</i>	2020
Leader-in-Residence <i>Hispanic Association of Colleges and Universities</i>	2020
Excellence in Action Award <i>UCF Office of Diversity Education and Training</i>	2020
Burnett Honors Scholar <i>Burnett Honors College</i>	2019
Florida Medallion Scholar <i>Bright Futures</i>	2018

SKILLS

Frontend: JavaScript/TypeScript, React, Redux, HTML/CSS, REST

Backend: Java, Python, C/C++, PostgreSQL, MongoDB, Go, Docker

Testing and Deployment: Amazon Web Services, Jenkins, Jest, Playwright, Splunk

Developer Tools: Git, TDD, Developer Collaboration, CI/CD, Jira, Test Implementation, Observability