

Dr. Christopher Charles Johnson

110 3rd Street, Radford VA, 24141
(586) 718-4381
cbj3585@gmail.com

SUMMARY

Senior Data Scientist/Python Developer with a demonstrated history of working in the scientific research industry. Skilled in Python and SQL, Data visualization, analysis, and interpretation, I have transitioned from academia to government and military consulting. I am a strong research professional with a PhD focused in Astrophysics from Louisiana State University. I have more than 15 years of programming experience within scientific research and analysis. I currently have 10 years of big data and data processing in the realm of Extract, Transform, Load (ETL) and 7 years of machine learning/Artificial Intelligence engineering. My passion is data and the insights gained from visualization and automation. I currently possess a secret clearance and an AWS Machine Learning Specialty Certification.

COMPUTER SKILLS

Languages

- Proficient in: Python (and all associated libraries), SQL, Javascript, Flask, Django, Dash
- Familiar with: C++, CSS, HTML, IDL, React, Angular, Plotly

Software

- Database: SQL Developer, SQL Server, Oracle
- Platforms: Power BI, Jupyter Notebooks, Microsoft products (Excel, Powerpoint, etc.), Docker
- Project Tracking and Management software: JIRA, Confluence, Agile Methodology, Github
- Deploying Web Apps in Microsoft Azure and Amazon Web Services CodeDeploy and AWS CLI

Certifications

- AWS Machine Learning Specialty Certification (BAH Emergent Skills Training Certification Program)
- AWS Data Analytics Specialty Certification (BAH Emergent Skills Training Certification Program, Data Warehousing course)

EXPERIENCE

Advanced Data Scientist/Python Developer, Associate

4/20-present

Booz Allen Hamilton, McLean VA

Software development. Automation of procedures, functions, and scripts. Implementation of machine learning techniques. Web application development and deployment. Data visualization and reporting.

Projects:

- Bighorn – An AutoML Edge Deployment Platform
 - Built custom APIs and db schema for the backend to interact with the UI
 - Built the custom production CICD pipeline for deploying the platform to an edge device or custom server
 - Liaison between the API framework and the React frontend UI

- Helped build custom docker containers and containerized the app
- **Razorback- A Laser Weapons Guidance System Data Analytics Tool**
 - Lead the backend conversion from csv and log file database to SQL database
 - Built custom queries for data ETL pipeline
 - Built Analytics Interface consisting of Machine Learning Algorithms looking at log files for a military Laser Weapons system.
 - Built classes and methods for Principal Component Analyses (PCA) and K-Means Clustering of a multitude of electronics channels to predict faults and misfires.
 - Built pre-processing pipeline for cleansing and loading raw data.
 - Connected data, classes, and methods (backend) to the user interface (frontend) for data visualization and further analyses.
- **Theia- A logistics and command app for the US Army**
 - Helped build a Dockerized Python-Django-Nginx-Celery-SQL web app
 - Setup virtual machines for app deployment on Microsoft Azure and AWS snowball
 - Provide support for the code repositories, implementation, and demos
 - Implemented engagement scenario models showing friendly and enemy troop movement in "real time"
 - Built API endpoints for connecting data to the SQL database
 - Built a data service and scheduler for pulling in data on normal intervals to populate the SQL database with real time data
- **Mobile Predictive Maintenance Suite**
 - Lead the Mobile Predictive Maintenance tool suite which includes AI and ML solutions for mobile devices to be used in the field whether it be industry, government, or military
 - Provide support for the code repositories, implementation, and demos
 - Currently, the tool suite includes an augmented technical inspection app, a visual, audio, and vibrational app for maintaining equipment and predicting failures.
- **COVID-19 Vaccine Distribution**
 - Implement a COVID-19 Vaccine distribution and staffing model per state that is deployed in a web-based application.
 - Create a population-based model for distribution of the COVID-19 vaccine while calculating the staffing needs in each state of the United States.
 - Maintaining code repository for additional functionality requirements and additions
- **COVID-19 Testing Kits Supply Chain and Allocation Tool**
 - Understand and map data acquired for COVID-19 analysis.
 - Map supply chain, tracking inventory on a state level.
 - Implement prediction forecasts for inventory based on historical data using AI and ML techniques.
 - Provide assistance based on forecasted models and refine algorithms through feedback of incoming weekly data.
 - Deployment of web-based applications in secure environments
 - Maintaining code repository for additional functionality requirements and additions

Data Scientist/Tech Lead/Developer

5/19-4/20

Next Phase Solutions and Services

Business analytics for website applications. Data visualization and reporting. Automation of procedures, functions, and scripts. Website application design and implementation.

- As tech lead, I manage a team of developers to make sure the data pipeline is streaming, the analytics are correct, and the UI reflects appropriate Key Performance Indicators (KPIs).
- Primary responsibilities include creating business analytic dashboards from raw data.
- Transferring dashboards into UI components.
- Creating functions to analyze and incorporate into UI components.
- Use machine learning techniques to pre-process raw data, model, interpret, and advise on outcomes of data trends.
- Create custom UI components to meet the clients' needs.
- Develop original algorithms to analyze real-time data.
- Automate as much as possible through the use of third party API endpoints.

Data Scientist

9/18-5/19

Fearless Technologies

Data science and analytics for website applications. Data visualization and reporting. Automation of procedures, functions, and scripts. Database migration and management.

- Primary responsibilities include managing and migrating the underlying database.
- Connecting new database to new web application.
- Running analysis and analytics to create weekly and monthly reports with Power BI.
- Developed algorithms to analyze data based on region, state, country, etc.

10/16-10/18

Postdoctoral Researcher/Data Scientist/Fellow*Space Telescope Science Institute*

- Design and implement coding algorithms to analyze data acquired with space-based telescopes, primarily the Hubble Space Telescope.
- Model the data acquired for further trend analysis.
- Part of a research team that focused on the internal dynamics of stellar clusters.
- Perform photometric and spectroscopic data reduction.
- Provide support for the team by providing weekly plots and contributing to scientific publications.

05/12-08/16

Research Assistant*Louisiana State University*

- Work on the Galactic Bulge Survey which is an international collaboration to understand and constrain the nature of X-ray binary systems in the Galactic center.
- Perform photometric observations with Space-based telescopes.

- Created database with 2 years worth of photometric data for retrieval.
- Analyze data while performing research to produce scientific publications in refereed journals.

08/12-08/14

Instructor/Teaching Assistant

Louisiana State University

- Taught two undergraduate astronomy lab courses as instructor each semester for three semesters and was an in-class TA for many undergraduate courses.
- Duties include writing syllabi, holding office hours, grading homework and administering exams and final exams.
- Providing students with study guides and creating the curriculum for the courses taught.

03/10-05/12

Certified Telescope Operator

Steward Observatory/Kitt Peak National Observatory

- Certified telescope operator for the 2.3 m Bok Telescope at Kitt Peak National Observatory and the 1.55 m Kuiper Telescope at the Mt. Bigelow Observatory.
- Aid the investigator in acquiring targets, guide stars, and start the observing run.
- Acquire calibration frames at the beginning and end of the observing run.

EDUCATION

Louisiana State University

05/12-08/16

Baton Rouge, Louisiana

- Ph.D. in Physics (Astrophysics)
Dissertation: *Variability of Optical Counterparts to X-ray Sources Within the Galactic Bulge Survey.*
Thesis Advisor: Dr. Robert Hynes

Louisiana State University

05/12-01/15

Baton Rouge, Louisiana

- M.S. in Physics (Astrophysics)

University of Arizona

08/07-05/10

Tucson, Arizona

- B.S. in Physics

CERTIFICATIONS

- AWS Machine Learning Specialty Certification 03/22

PUBLICATION LIST

- ``Constraining the Nature of the Accreting Binary in CXOGBS J174623.5-310550'', M.A.P Torres, Repetto, S., Wevers, T., Heida, M., Jonker, P. G., et al. 2019, MNRAS, 487, 2
- ``Precise measures of orbital period, before and after nova eruption for QZ Aurigae'', Schaefer, B., Boyd, D., Clayton, G. C., Frank, J., Johnson, C. B., et al. 2019, MNRAS, 487, 1
- ``The Primordial Binary Fraction in Wd2. II: The Spatial Distribution'', Johnson, C. B., Sabbi, E., Anderson, J., Zeidler, P., et al. 2019, ApJ (in prep)
- ``LAVA: The Large Amplitude Variable Association Within Westerlund 2'', Johnson, C. B., Sabbi, E., Anderson, J., Zeidler, P., Nota, A., et al. 2019, ApJ (in prep)
- ``The 125 Year Long-Term Light Curve of the Black Hole Binary V4641 Sgr'', Johnson, C. B., Schaefer, B. E., Hynes, R. I., Barsukova, E., Goranskij, V., 2019, MNRAS (in prep)
- ``Spectroscopic Classification of X-ray Sources in the Galactic Bulge Survey'', Wevers, T., Torres, M. A. P., Jonker, P. G., Heinke, C., Mata Sanchez, D., Johnson, C. B., Gazer, R., Steeghs, D. T. H., Maccarone, T., et al. 2017, MNRAS, 470, 4
- ``CXOGBS J174954.5-294335: A New Deeply Eclipsing Intermediate Polar'', Johnson, C. B., Torres, M. A. P., Hynes, R. I., Jonker, P. G., et al. 2017, MNRAS, 466, 1
- ``Discovery of a Long-Lived, High Amplitude dusty Infrared Transient'', Britt, C. T., Maccarone, T. J., Green, J. D., Jonker, P., Hynes, R. I., Torres, M. A. P., Strader, J., Chomiuk, L., Salinas, R., Johnson, C. B. et al. 2016, MNRAS, 460, 3
- ``The Chandra Galactic Bulge Survey: optical catalogue and point-source counterparts to X-ray sources'', Wevers, T., Hodgkin, S. T., Jonker, P. G., Bassa, C., Nelemans, G., van Grunsven, T., Gonzalez-Solares, E. A., Torres, M. A. P., Heinke, C., Steeghs, D., Maccarone, T. J., Britt, C., Hynes, R. I., Johnson, C. B., Wu, J., 2016, MNRAS, 458, 4
- ``Variability of Optical Counterparts to X-ray Selected Sources in the Galactic Bulge Survey'', Johnson, C. B., Hynes, R. I., Jonker, P. G., Torres, M. A. P., Maccarone, T., Britt, C. T., et al. 2016, AAS Meeting #227, #402.02
- ``The Relationship Between X-ray Luminosity and Duty Cycle for Dwarf Novae and their Specific Frequency in the Inner Galaxy'', Britt, C. T., Maccarone, T., Pretorius, M. L., Hynes, R. I., Jonker, P.G., Torres, M. A. P., Knigge, C., Johnson, C. B., et al. 2015, MNRAS, 448, 4
- ``Gemini spectroscopy of Galactic Bulge Sources: A Population of Hidden Accreting Binaries Revealed?', Wu, J., Jonker, P. G., Torres, M. A. P., Britt, C. T., Johnson, C. B., Hynes, R. I., Greiss, S., et al. 2015, MNRAS, 448, 2
- ``The Chandra Galactic Bulge Survey'', Britt, C. T., Hynes, R. I., Jonker, P. G., Maccarone, T., Torres, M. A. P., Steeghs, D., Nelemans, G., Johnson, C. B., Greiss, S., 2015, Fifty Years of Wide Field Studies in the Southern Hemisphere, ASP Conference Series, 491, 77
- ``The Identification of Extreme Asymptotic Giant Branch Stars and Red Supergiants in M33 With 24 μ m Variability'', Montiel, E., Srinivasan, S., Clayton, G., Engelbracht, C., Johnson, C. B., 2015, AJ, 149, 2
- ``HD 314884: A Slowly Pulsating B Star in a Close Binary'', Johnson, C. B., Hynes, R. I., Maccarone, T., Britt, C. T., et al. 2014, MNRAS, 444, 2
- ``Variability of Optical Counterparts in the Chandra Galactic Bulge Survey'', Britt, C. T., Hynes, R. I., Johnson, C. B., Baldwin, A., Jonker, P. G., Nelemans, G., et al. 2014, ApJS, 214, 1
- ``A Glimpse of Optically Variable Galactic Bulge X-ray Sources: A Comparison of Mosaic-II and DECam Photometry'', Johnson, C. B., Hynes, R. I., Jonker, P. G., Torres, M. A. P., Britt, C. T., Steeghs, D., et al. 2014, AAS Meeting #224, #219.18
- ``Identification of 23 accreting binaries in the Galactic Bulge Survey'', Torres, M. A. P., Jonker, P., Britt, C. T., Johnson, C. B., et al. 2014, MNRAS, 440, 1
- ``Glimpses into the Secret Lives of Hot Subdwarf Stars'', Green, E., Johnson, C. B., Wallace, S., O'Malley, C., Amaya, H., Biddle, L., Fontaine, G., 2014, ``6th Meeting on Hot Subdwarf Stars and Related Objects'', ASP Conference Series, 481, 161

- "Photometric Survey to Search for Field sdO Pulsators", Johnson, C. B., Green, E., Wallace, S., O'Malley, C., Amaya, H., Biddle, L., Fontaine, G., 2014, "6th Meeting on Hot Subdwarf Stars and Related Objects" ASP Conference Series, 481, 153
- "The Galactic Bulge Survey: Completion of the X-Ray Survey Observations", Jonker, P., Torres, M. A. P., Hynes, R., Maccarone, T., Steeghs, D., et al. 2014, ApJS, 210, 2
- "Nova Aquilae 1918 (V603 Aql) Faded by 0.44 Mag Per Century from 1938 to 2013", Johnson, C. B., Schaefer, B. E., Kroll, P., Henden, A. A., 2014, ApJ, 780, L25
- "CXOGBS J173620.2-293338: A Candidate Symbiotic X-Ray Binary Associated with a Bulge Carbon Star", Hynes, R., Torres, M. A. P., Heinke, C. O., Maccarone, T., Mikles, V., et al. 2014, ApJ, 780, 1