PROFESSIONAL SUMMARY

Experienced and highly effective technical leader since 2017, developing and deploying applications for science and machine learning applications within a team of developers and SMEs. Responsible for architecture, implementation, and cloud/on-prem deployment of multiple, large scale products using scrum, clean coding, conforming to robust automated testing and evaluation requirements with open architecture. Strong communication and pedogogical skills used frequently in **client interaction**, **mentorship**, **and recruiting** SMEs and developers. Active CBP BI and DOD Top Secret clearance.

SKILLS

- Management of scientists, developers, and SMEs
- Software architecture and development using SOLID principles
- Data science expertise, including ML, classi- Highly experienced working with big data cal statistics, and Bayesian statistics
- Program management using scrum, Jira, Git
- Developing unit, integration, and end-toend tests
- Subject matter expert in nuclear detection modes, failure analysis, and technology test

and evaluation

- Expert level programming: Python, .NET, and Javascript. Very high level of proficiency programming in Java.
- (100+TB)
- Containerizing applications and CI/CD pipelines
 - IAM/SSO integration
- Advanced data viz

EXPERIENCE

DigitalSpec LLC · Falls Church, VA Technical Lead/Physicist/Data Scientist On-site contractor with DHS/CBP's Data Analysis Center-Threat **Evaluation and Reduction**

- Led development of a field-deployed ML algorithm for improved threat detection of materials and streamlined port operation. Worked with a team of physicists, database SMEs, and developers to engineer front- and back-end code for feature extraction, model building and evaluation, test and evaluation of models.
- Led development of automating detection of health status of a huge fleet of deployed radiation portal monitors. Developed statistical methods and software implementation via data warehousing, procedural code, and report generation. Coordinated with calibrators and maintenance organizations to ensure quality of reporting and metrics. Designed and developed of dashboards for analyst adjudication of maintenance cases, allowing real-time situational awareness.
- Directed a massive migration from an on-prem data center to AWS, including data migration/transformation, modernizing architecture, application containerization, integration with

2017-present

CI/CD pipelines, and SSO integration. Developed testing for evaluation of data quality.

- Developed sophisticated statistical tools for assessment of neutron detection equipment used in radiation portal monitors at US points of entry.
- Produced reports and presentations for government agencies both inside and outside DHS, analyzing nuclear threat methods and equipment and recommending operational changes to assist in optimizing CBP's effectiveness.
- Participated in assessment of new equipment for fielding, including the multi-energy x-ray portal (MEP) project and RPM replacement program for next-generation radiation portals.
- Trained and mentored developers, physicists and analysts in their daily activities. Recruited over 40 staff members and conducted in-person interviews with over 250 applicants.

Union College · Schenectady, NY Visiting Assistant Professor of Physics Department of Physics and Astronomy

- Developed physics courses for life scientists, mathematicians, chemists, and biochemists. Conducted daily lectures and assessment of students.
- Expanded and refined lab activities to emphasize simulation and statistical rigor in empirical reasoning, such as quantitative error analysis and error propagation in numerical solutions to differential equations
- Participated in department-wide assessment measurement of Newtonian Physics comprehension to determine value-added by varied pedagogical techniques

Georgia Institute of Technology · Atlanta, GA Post-doctoral Research Fellow Department of Chemistry and Biochemistry

- Developed system for detection of biomolecules on surfaces using high-power VUV laser light for the Center for Chemical Evolution
- Proposed and conducted experiments into surface-reaction origin of molecular makeup of Titan using electron stimulated desorption time-of flight
- Developed and characterized a compact and low-power microplasma device for photoionization in ambient mass spectroscopy
- Conducted research at the Advanced Photon Source synchrotron at Argonne.
- Wrote and illustrated six papers published in high impact, peer reviewed journals
- Mentored and managed new researchers in vacuum science and electronics
- Directed student capstone experience projects in renewable energy using novel photoactive materials

University of California, Riverside · Riverside, CA Graduate Research Associate Department of Physics and Astronomy

- Measured properties of charge exchange at the surface of semiconductors and superconductors
- Worked with electrical engineers to characterize the material properties of their devices

2015–2016

2003-2011

2011–2015

- Developed Monte Carlo simulations to support experiments in condensed matter physics
- Wrote and illustrated seven papers in high-impact journals
- Measured charging characteristics and IV characteristics of buried quantum-well AlGaAs devices

EDUCATION

- PhD, Physics, University of California, Riverside, December 9, 2011
- MS, Physics, University of California, Riverside, March 19, 2005
- BA, Physics, Claremont McKenna College, Claremont, CA, 2003