Technologist: Data Science Infrastructure

Overview
Axiom Data Science is recruiting for a senior software and cloud infrastructure engineer to contribute to the advancement of the organization's web based scientific data management tools. This position will be located in Portland, OR and will work under the direction of an Axiom Software Architect who also lives in Portland. This is a full-stack software engineering position with additional responsibilities in development and operations and cultivating Axiom's high performance computing infrastructure. Applicants should be capable of solving problems and implementing elegant solutions in all areas of computing, whether in back-end data services, front-end user interfaces, or at the server build table in the colo. Proven experience with industry standard open source tools is important, but inspiration, vision, self-efficacy, motivation, determination, and commitment are the qualities Axiom values most. As a small company taking on complex information science challenges, Axiom depends on all employees being multi-talented, imaginative, and resourceful. Staff are provided with the tools they need to perform at their highest potential and rewarded with an employee-focused work environment.

While we desire someone with all of the below mentioned characteristics, experience in all the described areas is not required.

Software Engineering
Axiom uses free and open source software. Most projects are developed using Java or Python and focused on Linux operating systems. Applicants should be well versed in the basics of application architecture, source control management, web and command line application development, database design, software artifact repositories and package systems, dependency management, unit and integration testing, and continuous deployment techniques.

Science Background
Axiom works almost exclusively with the scientific community with a focus on earth, ecological, and marine sciences. Knowledge of these fields of science along with familiarity with common data types and domain specific software packages is beneficial. Experience with scientific and spatial data formats and interoperability standards (e.g. NetCDF, GeoJSON, OGC standards) is preferable. An understanding of the characteristics, capabilities, and challenges of spatial and temporal data is highly desired.

Development Operations
Organizations must cultivate a strong culture of development operations in order to efficiently manage and provision private cloud resources for software applications. Machine builds and container image deployments must be automated and standardized and health of the cluster state and the applications running there must be monitored. Axiom makes heavy use of continuous integration, automated deployment, and containerization techniques to streamline infrastructure configuration and application deployment. Applicants will benefit from experience

and knowledge of these techniques, and at a minimum should be enthusiastic to learn about and adopt these rapidly evolving technologies.

Big Data Systems
Horizontally scaling storage and compute technologies make it possible to preserve and analyze large scale and heterogeneous scientific data sets. Clustered storage systems, shardable NoSQL solutions, and map reduce style analytical pipelines enable clusterized applications to leverage storage, throughput and compute resources across multiple machines providing the performance required for big data analytics. Axiom is seeking candidates with shown experience working with these types of technologies.

Infrastructure
Axiom operates two geo-replicated high performance computing data centers located in Portland, OR and Providence, RI. These datacenters are comprised of hundreds of nodes which constitute thousands of processor cores and petabytes of clustered storage. All systems are connected over a high performance InfiniBand network fabric. Axiom utilizes these resources as the engine to power storage and analytical systems for large scale scientific datasets. It is expected that this position will assist staff with supporting the existing infrastructure and take a role in the design and physical build of next generation infrastructure.

Technologies
The following is a non-inclusive list of technologies that we use in our product development and infrastructure management. Applicants are **not required** to have experience with these technologies, and future projects are **not limited** to these technologies. These examples are provided only to inform applications of our current technological focus.

*Docker, Ansible, GitLab, GitLab CI**,** Python, Java, Scala, Postgres, PostGIS, MongoDB, Gluster, InfiniBand, Elasticsearch, Prometheus, Redis, Apache Spark, NetCDF, GeoServer, ncWMS, D3.js, Backbone.js, Marionette, Webpack, Grunt, Conda, Play Framework, Node, Maven*

Compensation and Benefits
Salary is $80K - $100K based on experience. Benefits include five weeks paid leave, holidays, health benefits, 401K contributions, and a gym membership.

<u>Application Materials</u>
Required
- Resume
- One page description of completed project, suggested inclusions:
  - Link to live project and/or public code repository (if applicable)

Recommended
- StackOverflow profile link
- Github profile link
- Other examples of expertise/open source participation