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## **Job Description**

**Job Vacancy :** Scientific Software Developer/Linux Administrator

**Date:** 03/09/2023

**Location:** Madison, Wisconsin

**Salary:** Highly Competitive Plus Benefits

**Hours:** Full Time

**Contract Type:** Permanent

**Reporting to:** Chief of Stellarator Optimization

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### **About Type One Energy**

Fusion energy is the clean power at the center of stars. Mastered here on earth, its unique advantages will rapidly disrupt carbon-based fuels to become the primary form of baseload power on the planet.

**Type One Energy** is a fusion energy startup applying innovations in additive manufacturing, quasi-symmetry, and HTS magnets to commercialize an economical stellarator power plant. The stellarator is an innovative marriage of elegant physics, engineering artistry, and practical utility.

Founded by experts and technology from the University of Wisconsin, Type One Energy is a world leader in stellarator R&D with the mission to provide clean and affordable fusion power to every city across the globe.

In collaboration with our public and private partners, we are uniting the outstanding operation of a stellarator with breakthroughs in theory, additive manufacturing, and high temperature superconducting magnets. We are producing an economical fusion power plant to be deployed worldwide in the shortest amount of time.

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### **About the role**

Type One Energy is seeking a Linux/scientific software administrator to join its team. The role of the new software developer in the company will be to administer the research computing environment and maintaining the team's computational tools for stellarator optimization.

The position will work directly with the optimization R&D to provide solutions for distributed and high-performance computing. The position will be afforded a high-degree of autonomy to design and implement stellarator-optimization-specific solutions for consistent and reproducible computing. A primary focus will be implementing modern software testing frameworks and producing technical documentation. The project may also include modernization of some existing physics codes. The work

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will evolve as new code components are developed by other members of the stellarator optimization team at Type One Energy.

The scientific software used by our team is primarily written in Fortran, C++, Julia, and Python, so candidates must be proficient in some or all of these languages, and knowledge of mixed-language programming is an advantage. Most new code is likely to be in C++ and Julia. Experience with high-performance computing (HPC) and distributed and parallel computing is a plus. Familiarity with stellarator physics is not necessary.

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## **Responsibilities**

- Ensure consistent availability and usability of R&D computational resources (personal workstations, shared resources, data storage resources).
- Deploy and manage a self-hosted GitLab instance, maintain software testing and CI/CD capabilities.
- Ensure software interoperability by ensuring scientific software packages are kept up to date.
- Deploy software containers to ensure consistent computing environments for reproducibility.
- Deploy and manage databases of scientific simulation results.
- Write internal technical documentation for end users.

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## **Required Qualifications and Experience**

- Expertise in Linux administration, particularly for scientific software development.
- Proficiency deploying and administering a self-hosted GitLab/Github instance including CI/CD capabilities; understanding and enforcing distributed software development best practices.
- Expertise in Julia and/or Python package development.
- Proficiency in C++/Fortran and language interoperability.
- Proficiency deploying and managing containerized services such as Docker/Singularity/Shifter.
- Proficiency compiling/debugging HPC applications.
- Proficiency writing technical documentation.
- Experience with large scale data storage solutions.
- Proficiency with parallel programming models like MPI is desirable.
- Experience with GPU computing is desirable.
- Experience with cloud computing is desirable.
- Experience with AI/ML applications is desirable.

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## **To Apply**

Please send your CV and cover letter to Sam Belazka at [sam.belazka@typeoneenergy.com](mailto:sam.belazka@typeoneenergy.com) and for more information please visit our website at [www.typeoneenergy.com](http://www.typeoneenergy.com).

Also, as an example of previous work, applicants should submit the source code (or a link to it) for a software application they have written.