

Opportunity Title: ORNL Geospatial Big-Data Analytics and Visualization Post-Master's Research Associate

Opportunity Reference Code: ORNL17-01-CSED

Organization Oak Ridge National Laboratory (ORNL)

Reference Code ORNL17-01-CSED

Description Master's degree in computer science, computer engineering, geography, geosciences, mathematics, or related disciplines.

The Geographic Information Science and Technology (GIST) Group in the Computational Sciences and Engineering Division (CSED) at the Oak Ridge National Laboratory (ORNL) seeks to hire a post-master's researcher in Computer Science with a focus in big-data analytics and geovisualization.

The function of this position is to provide research and development support to a large number of geospatially-focused projects that span a wide variety of scientific domains, applications, delivery platforms, programming languages, and hardware and software architectures. The candidate must be comfortable working as part of a tightly integrated team and must be capable of supporting multiple projects simultaneously.

Major Duties/Responsibilities

Responsibilities include, but are not limited to:

- Conducting basic and applied research in advanced data analytics, uncertainty, visualization, ensemble methods, data fusion, and data provenance with a strong emphasis on algorithm development, prototyping, and validation.
- Develop, optimize, and transition algorithm prototypes to scalable, parallelized, and robust implementations.
- Working with GIST researchers, as well as internal and external project sponsors, to capture, understand, integrate, and implement their requirements in developed algorithms and associated software, as well as contribute to publications.

Qualifications Basic Qualifications:

- MS in computer science, computer engineering, geography, geosciences, mathematics, or related disciplines.
- Experience in one or more of the following areas: GIS, remote sensing, geographic information systems, big-data mining, simulation and modeling, statistics, and visualization.

Preferred Qualifications:

- Past hands-on involvement in research and development of significant geospatial software platforms involving big-data, visualization, machine learning, statistics, and modeling.
- Strong publication records in the areas of expertise.
- Strong programming experience with C, C++, Python, JavaScript, Matlab, Perl, and R.
- Experience with big-data, data mining, data provenance, ensemble methods, and uncertainty visualization.
- Experience in use of GDAL, PROJ.4, QGIS, OpenLayers, OpenStreetMap, Leaflet, D3, Angular, Bootstrap, and Node.js.
- Knowledge of WebGL, computer graphics (OpenGL, VTK, etc.), and



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SQL/NoSQL databases (PostgreSQL, PostGIS, Cassandra, MongoDB, etc) is desirable.

- Experience with parallel and distributed computing software and hardware architectures including OpenMP, MPI, CUDA, OpenACC, OpenCL, and Apache Open Source Solutions.
- Strong social and communication skills and experience in working with multidisciplinary teams.

Applicants cannot have received the most recent degree more than five years prior to the date of application and must complete all degree requirements before starting their appointment.

This ORNL Postgraduate Research Associates Program is administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education (ORISE).

- Eligibility Requirements**
- **Degree:** Master's Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([16](#) )

Affirmation I certify that I have completed coursework towards a degree in science, technology, engineering, mathematics, or a related field.

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