

Opportunity Title: Geospatial Web Application and Automation Development

Fellow

Opportunity Reference Code: DOT-2016-0005

Organization U.S. Department of Transportation (DOT)

Reference Code DOT-2016-0005

How to Apply A complete application consists of:

- An application
- A current resume/CV
- Transcripts – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Selected candidate may be required to provide proof of completion of the degree before the appointment can start.

All documents must be in English or include an official English translation. If you have questions, send an email to SciEdPrograms@orau.org. Please include the reference code for this opportunity in your email.

Application Deadline 4/7/2017 12:00:00 AM Eastern Time Zone

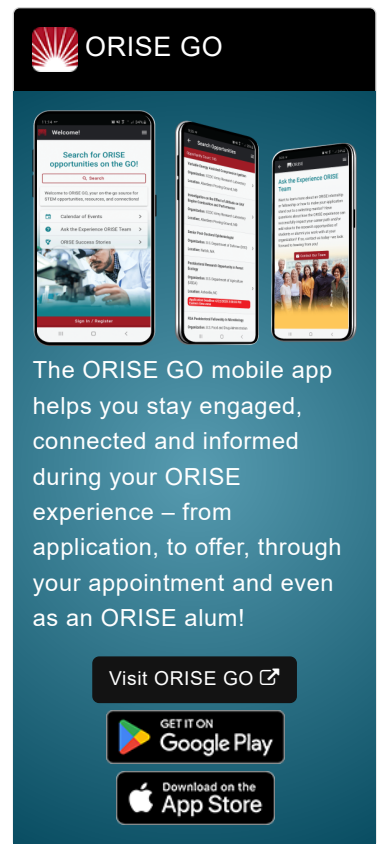
Description Do you have the skills to dive deep into a malfunctioning JavaScript function in the morning and eloquently present your statically-valid signal-from-the-noise mapping results to senior leaders in the afternoon without their eyes glazing over? Are you ready to bring transformative change to traditional 2-D mapping techniques at the Federal level? Take an appointment with our team as we transform spatial analysis for transportation, and where you design, develop, and implement innovative web and mobile geospatial applications.

The applications you create will enable the public to visualize, view, interact with and analyze geospatial data, models and statistics related to transportation. Working closely with graphic designers to craft compelling user experiences, you, as the developer/programmer will design and build innovative, dynamic, and complex web and mobile geospatial applications that consume, process and report about geospatial information.

You will also build new custom applications, tools and scripts to automate procedures and specialized tasks related to geospatial data production, management, analysis, and delivery. Your solutions will often focus on streamlining the discovery, acquisition, collection, aggregation, processing, preparation, storage, delivery, publication and dissemination of geospatial data, statistics, and analysis. Configuring and optimizing the agency's geospatial environment, data schemas and system architecture for mobile and web services and applications will be important.


Your work can cover the entire software development lifecycle, taking you from requirements analysis, systems analysis, systems design, database design, and using development environments to writing computer code, scripts and programs, in a variety of languages, for use with ESRI and other GIS software.


You will have the opportunity to develop close working relationships with other DOT offices, and other Federal agencies that maintain geospatial




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data and analytical web and mobile tools, which can aid in the understanding of the transportation industry. You will participate in interagency efforts relating to the development and improvements of geospatial web and mobile applications, and you will conduct research on existing and emerging technologies, processes and approaches that can be used to enhance the geospatial analysis of transportation.

Finally you will have the chance to assist in development and updates to the National Transportation Atlas Database (NTAD), a set of nationwide geographic databases of transportation facilities, transportation networks, and associated infrastructure.

Who are we? We are the U.S. Department of Transportation's Bureau of Transportation Statistics (BTS) Office of Spatial Analysis and Visualization (OSAV). The BTS is the Principal Federal Statistical Agency that provides objective, comprehensive, and relevant information on the extent and use of the Nation's transportation system, how well the system performs, and the effects of the system on society and the environment. The OSAV develops geospatial information and visualization tools, conducts spatial and network analyses, develops performance measures related to the transportation network and geographic accessibility provided by the network, prepares maps for BTS publications, coordinates the transportation layer of the National Spatial Data Infrastructure, and publishes the NTAD. OSAV employs high quality cartography and innovative web applications to produce relevant, high quality, timely, comparable, complete, and accessible geospatial products and statistical visualizations.

Participant Benefits

The selected candidate will receive a stipend as support for living and other expenses during this appointment. Stipend rates are determined by DOT officials and are based on the candidate's academic and professional background. The candidate may also be eligible to receive a health insurance allowance and reimbursement for travel expenses. This appointment is full-time for one year and may be extended in increments of up to one year, contingent upon project needs and funding availability.

Nature of the Appointment

Participants will not enter into an employee/employer relationship with ORISE, ORAU, the DOT, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Qualifications The successful candidate will have a Bachelor's degree (master's degree desired) in related field required (preferably in Computer Science, Information Systems, GIS, Engineering, Business, Math, or Geography).

The ideal candidate will have a combination of the following:

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- Proficiency translating high level business requirements into detailed design specifications;
- Experience presenting results in a clear, effective, and attractive manner to inform next steps;
- Strong written and verbal communications skills;
- A self-starter with the ability to perform work with limited supervision and changing outcome goals;
- Knowledge of U.S. transportation systems;
- Understanding of internet architectures and technologies, including familiarity with standard software development protocols and coding standards, and application documentation including system design and technical specifications;
- Demonstrated skills in web and mobile application development and design, including knowledge of web-based viewer technologies (Google Earth/Maps, ESRI JavaScript API, OpenLayers, Leaflet) and modular software design.
- Knowledge of open and proprietary exchange formats used in GIS-specific applications, including: REST/JSON, GeoJSON, XML, geodatabases, Web Mapping Services (WMS), and Web Feature Services (WFS);
- Experience and proficiency in writing computer programs, developing scripts, and working with JavaScript, HTML5, CSS, Python, C# and object oriented programming;
- Understanding of API design, distributed systems, and data modeling;
- Comprehensive experience with the ESRI suite of products (ArcGIS Desktop, ArcGIS Server, ArcSDE, ArcObjects, JTX/Workflow Manager);
- Demonstrated knowledge and use of industry standard database tools and languages including standard SQL Oracle/Microsoft/Postgres Relational Databases and geodatabase extensions to relational databases, SQL.

**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Discipline(s):**
 - **Business** ([1](#))
 - **Computer, Information, and Data Sciences** ([16](#))
 - **Earth and Geosciences** ([21](#))
 - **Engineering** ([27](#))
 - **Environmental and Marine Sciences** ([14](#))
 - **Life Health and Medical Sciences** ([6](#))
 - **Mathematics and Statistics** ([10](#))
 - **Other Non-Science & Engineering** ([1](#))
 - **Social and Behavioral Sciences** ([4](#))