

## **Exceptional developer for climate group: Big data, geo & web**

High profile climate change science and media group seeks exceptional, experienced developer for scientific programming with big data, high performance GIS/mapping, and web deployment.

Climate Central has won wide recognition for its recent scientific research and web application development on sea level rise and coastal flood risk, including numerous appearances on national network news, front-page coverage in *The New York Times*, Senate testimony and millions of online page views. Hurricane Sandy has now multiplied demand and the opportunity to contribute significantly to national conversations on climate change and coastal flood risk reduction.

The advertised position is to support research and web development for a significantly advanced next generation of maps, web applications, data visualizations, TV news graphics, reports and scientific papers exploring sea level rise and coastal flood risk in the US. It will further support international expansion of this research aimed at informing major global climate treaty negotiations in 2015. Finally, over time the role will support research and data visualization concerning additional climate change impacts, such as the growth in wildfires in the western US.

The first tasks for the successful candidate will be to learn, operate, maintain and then update Climate Central's current sea level and coastal flood risk modeling systems. Near term needs include updating existing input data sources, adapting the systems to new data sources, and ultimately expanding their capability for new data source types. Later work will include development of new systems for new research and opportunities for scientific coauthorship.

The candidate is expected to be minimally supervised and relied upon for independent research and self-guided creativity. We are a small team that depends on each member, and each must be agile and willing to try new things and do a little bit of everything, across many levels of interest and difficulty.

Core skill sets desired and topic mastery include:

### **Big data**

- Big data (tens of terabytes) must be extracted, transformed, and loaded (ETL) appropriately. Prior work with big data transfer optimization and fault tolerance and RAID methodologies of multi-tiered mechanical and solid state storage are desired.
- Access remote data servers that employ FTP and WMS protocols and develop web scraping scripts for form-based websites.
- Relational database creation and querying, such as with SQLite.
- Automated reading and creation of structured data formats including Shapefile, GeoTIFF, JSON, YAML, CSV, KML, geoJSON, topoJSON, and Excel.

### **Advanced geospatial processing and mapping**

- GEOS, GDAL, CGAL, STL, and Boost libraries (or equivalent) to support custom algorithms written in C++, Python, and Bash.
- Static and interactive maps created with Mapnik, Leaflet, D3, RaphaelJS and GoogleMaps.
- GUI-based GIS packages ArcMap and QGIS.
- Initiative to develop high performance algorithms that touch on topics such as spatial indexing, rasterization, polygonization, computational geometry, and coordinate system transformation.

### **Web back end**

- Experience with Linux for development, operations, cloud deployment, and scalability on Amazon EC2.
- Web server development and administration with software stack such as Nginx, Supervisor, Unicorn, WSGI (Bottle).
- Employ a keyword search engine web server such as Whoosh.

### **General development**

- Aptitude for high performance algorithms and well-organized code
- Commitment and practice of high quality documentation
- Familiarity with developer operations concepts and tools like GNU Make, Git, Github, Fabric.
- Comfortable with system administration and package management on Debian or Ubuntu systems and building and running command-line programs.
- Perform and monitor parallel batch processing with GNU Parallel.
- Knowledge of software development lifecycle principles, unit testing, and staged quality assurance testing with virtual machine technologies like KVM (or equivalent, such as Vagrant and VirtualBox).
- Commercial off the shelf products (COTS), free and open source software (FOSS).
- Knowledge of R a plus

### **Graphics / map publication**

- Ability to create publication quality graphics with any combination of Imagemagick, Adobe Illustrator, Adobe After Effects and Autodesk Maya (or equivalent) are plusses.

This position has no fixed requirements for education or background, but the ability to do the job with a very fast start is paramount. A successful predecessor had a M.S in Computer Science from a leading university; 8 years of professional coding experience, including geospatial/mapping and scientific work; and an exceptionally adaptable, agreeable and hard-working nature. We are looking for A+ candidates only. This is a critical moment of opportunity in the field, and we are looking to hire a highly committed, qualified candidate of character immediately.

**About Climate Central**

Climate Central is a growing, non-profit organization with an entrepreneurial atmosphere. We are an independent organization of leading scientists and journalists researching and reporting the facts about our changing climate and its impact on the American public. Climate Central is not an advocacy organization and does not lobby or support any specific legislation, policy or bill.

**Location**

This position will be located in our Princeton, NJ office, accessible from the greater New York City and Philadelphia areas.

**Compensation**

Compensation is competitive, with very generous benefits.

**Diversity**

Climate Central strongly encourages diverse candidates to apply. We are an Equal Employment Opportunity employer and as such does not discriminate against any applicant for employment or employee on the basis of race, color, religious creed, gender, age, marital status, sexual orientation, national origin, disability, veteran status or any other classification protected by applicable discrimination laws.

**Apply**

Please send pdf's of your resume and a cover letter including salary expectations to [jobs@climatecentral.org](mailto:jobs@climatecentral.org), with the exact subject line, "Climate coder" (no quotes). Due to the volume of employment applications and queries received, Climate Central is unable to respond to each application individually. Applicants will be contacted directly if selected as a candidate. Search will close when successful candidate is recruited to fill this position.