



USGS NSF Internship Opportunity

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| Point of Contact Name: | Sophia B Liu, Ph.D. |
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| USGS Center: | Science and Decisions Center |
| Project Title: | Operationalizing Crowdsourcing and Open Innovation for Emergency Management through Data & Tool Standardization |
| Summary: | <p>This interagency (USGS, FEMA, USACE) pilot project is a unique opportunity to investigate how to operationalize crowdsourcing and open innovation for emergency management through the standardization of data and tools. Help design a playbook, and organize workshops and hackathons with key innovators and open data experts across the government.</p> |
| Project Hypothesis or Objectives: | <p>During the 2017 hurricane season, a USGS open innovation expert was on mission assignment to the Federal Emergency Management Agency (FEMA) to help operationalize crowdsourcing to enhance situational awareness, decision-making, and inform machine learning and artificial intelligence applications. However, there is not a unified effort in standardizing the data and tools used for emergency management to effectively leverage crowdsourced data, tools, and services. A common language of data and tools is needed across the Whole Community (i.e., all levels of government, academia, private sector, non-profit, volunteers, survivors, and the public) not just for the disaster response phase, but also for the recovery, mitigation, and preparedness phases.</p> <p>This joint interagency pilot project between U.S. Geological Survey (USGS) - Department of Interior (DOI), FEMA, and U.S. Army Corps of Engineers (USACE) has four deliverables: (1) Conducting a gap analysis on the standardization of data and tools in emergency management, and (2) organizing various forums to accelerate the production of a (3) Playbook for Emergency Management that will be (4) iteratively tested at exercises and hackathons to be ready for 2018 hurricane season.</p> <p>(1) Identify 20 key data points (e.g., roads, bridges, hospitals, food, water, shelters, fuel, telecommunications, etc.) in emergency</p> |

management that should be collected, formatted, and shared in standard ways across the Whole Community to enable situational awareness and strategic, operational, and tactical decisionmaking. [2 months]

(2) Organize Forums with USG Open Data and Data Cabinet, US Data Federation, Center for Open Data Enterprise, Federal Geographic Data Committee, and American Geographical Society that engages the Whole Community in developing data standards, cataloging tools, and creating machine-readable open data. [4 months]

(3) Create a Playbook of Open Data Standards and Tools for Emergency Management and leverage existing platforms and initiatives like Disasters.Geoplatform.gov, Data.gov/Disasters, and Humanitarian Data Exchange. [2 months]

(4) Test the Playbook & iteratively improve it at an Exercise & Hackathons and have it ready for the next disaster. [6 months]

Duration: Up to 12 months

Internship Location: Reston, VA and Washington, DC

Field(s) of Study: Geoscience, Computing, Emergency Management

Applicable NSF Division: EAR Earth Sciences, BD HS Big Data Regional Innovation Hubs and Spokes, SES Social and Economic Sciences, SMA SBE Office of Multidisciplinary Activities, CMMI Civil, Mechanical & Manufacturing Innovation, EFMA Office of Emerging Frontiers and Multidisciplinary Activities, OAC Office of Advanced Cyberinfrastructure, CISE Computer and Information Science and Engineering

Intern Type Preference: Any Type of Intern

Keywords: crowdsourcing, citizen science, civic hacking, open innovation, emergency management, open data

Expected Outcome: This project will result in helping to operationalize crowdsourcing and open innovation for emergency management through the production of standard data and tools to enhance situational awareness, decision-making, and inform machine learning and artificial intelligence (AI) for emergency management applications. The intern will get to work on a project that makes a difference and contributes to an important mission with significant impacts to emergency management and our Nation's safety and security. The intern will also receive dedicated mentorship from interdisciplinary innovation specialists and work closely with open data and emergency management experts in a team environment to advance open data and open innovation initiatives in the federal government.

● **Special skills/training
Required:**

Educational background in crisis informatics, computer science, information science, emergency management, GIS, or data science. Excellent organizational skills and attention to detail. Strong ability to communicate effectively in English, both verbally and in writing. Interest and passion in crowdsourcing, open innovation, emergency management, open data, open source, and hackathons. Previous experience with organizing workshops, roundtables, or hackathons. Strong web research skills in investigating open data standards and tools. Strong oral and written communication skills comfortable with interacting and coordinating with different kind of stakeholders in emergency management. Knowledge of or interest in civic engagement, volunteering and service, philanthropy, impact investing, finance and/or entrepreneurship as tools to drive big social change.

● **Duties/Responsibilities:**

The intern will have opportunities to interact with diverse stakeholders, conduct research on standard data and tools in emergency management, develop material for the playbook, and propose strategies for testing the playbook. The intern will also be asked to collect and review open data standards and tools in emergency management and analyze existing open source crowdsourcing products and applications. The intern will document the development and process of the pilot project and will be responsible for (1) assisting with the gap analysis and research of the data and tools used in emergency management, (2) helping to plan, organize, and assist during workshops and roundtables with various key stakeholders from the Whole Community (i.e., all levels of government, academia, private sector, non-profit, volunteers, survivors, and the public), (3) assisting in the development of a Playbook for Emergency Management, and (4) helping to test the playbook at an exercise and at hackathons.

Internal Information - Not to be posted:

Center Director Name: Carl Shapiro

USGS Responsibilities: Equipment, Facilities, Mentoring, On-boarding, Background Check, Volunteer Agreement Management

Preliminary Approval: This opportunity has my Center's approval

I already have a student in mind:

Comments: This opportunity is partly funded by a small grant from the CIO Council Innovation Committee.
