

Google Open Source Blog

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Who is New in Google Summer of Code - Part 5

Friday, July 19, 2013

This week we have three more new [Google Summer of Code](#) organizations explaining their projects and what their students are working on this summer as we approach the midpoint of the program.



The [Iowa Flood Center \(IFC\)](#) was established at the [IIHR – Hydroscience and Engineering, University of Iowa](#). Our mission is to improve flood forecasting and mitigation understanding—all with the goal of trying to prevent future flooding or lessen its effects along Iowa's major waterways. The IFC has established several community-based programs to improve flood monitoring and prediction in Iowa.

IFC is actively engaged in flood projects in several Iowa communities and employs several graduate and undergraduate students participating in flood-related research. Some of the project activities at IFC are design and development of information systems, most recently – [Iowa Flood Information System \(IFIS\)](#), large scale data management, interactive geospatial visualization, flood forecasting models, augmented reality applications, and rich web and mobile applications.

We're very excited to be part of the 2013 Google Summer of Code, and have three students working on IFC projects. This year, our projects focus on real-time mapping of floods using drones, and simulation of flood inundation using augmented reality, WebGL and mapping services.

By Ibrahim Demir, Iowa Flood Center Google Summer of Code Organization Administrator



[MoveIt](#) is a robot agnostic software framework that integrates motion planning, kinematics and collision detection with online processing of sensor data and monitored execution of trajectories. The functionality provided is centered around motion planning and relies on ROS for configuration and communication. Given 3D sensor data as input, MoveIt constructs and maintains a representation of the world around the robot and offers planning and manipulation capabilities. Various analysis and benchmarking tools are also included.

Our student, Nghiem Do, will be working on improving the speed of computation and the success rate for numerical inverse kinematics solvers (e.g., KDL) using a precomputed cache of solutions. Numerical solvers need a seed to start their search for a solution to the inverse kinematics problem. Nghiem will work on a means to construct and quickly search a database of pairs - inverse kinematics queries and their solutions - so that when a new query is made, the solution to a nearby query (previously stored) is used as seed. This should reduce the expected number of iterations the numerical solver has to make and increase the likelihood of finding a solution.

By Ioan Sucan, MoveIt Google Summer of Code Organization Administrator



[Scaffold Hunter](#) is a Java-based tool for the visual analysis of data sets with a focus on data from the life sciences. The goal of the project is intuitive access to large and complex data sets. Scaffold Hunter facilitates interactive data exploration and offers a variety of views (graph-based, dendrogram, and plot view), as well as analysis methods for clustering and classification.

Scaffold Hunter has its origin in drug discovery, which is still one of the main application areas, and is currently evolving into a reusable open source platform for a wider range of applications. The tool offers flexible plugin and data integration mechanisms to allow adaptation to new fields and data sets.

A particular new application that one of our Google Summer of Code students, Falk Nette, is working on is medical image retrieval, with the goal to allow the user to evaluate retrieval results based on a guided visual exploration of the image feature space. Our other student, Jeroen Lappenschaar, is extending the range of visualizations available in Scaffold Hunter by adding Ramachandran plots, Treemaps, and Heatmaps.

By Karsten Klein, Scaffold Hunter Google Summer of Code Organization Administrator

These are only a few of the new organizations participating this year in Google Summer of Code; stay tuned next week when we highlight three more new organizations. A complete list of the [177 organizations](#) mentoring students this year and a list of the [1184 student projects](#) are available on the [Google Summer of Code program site](#).

By Stephanie Taylor, Google Open Source Programs



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