

Multiple subject matter experts were consulted over the course of this project in order to obtain insight on typical search and rescue scenarios as well as some of the technical constraints and possibilities for current and future designs.

### **Dr. Kremens**

Dr. Kremens has experience participating in search and rescue operations and in mapping forest fires and patterns of fire movement. Based on his experience it will be most useful for us to split our simulations into different environments based on specific natural disaster scenarios instead of just including many terrain types into one grid.

During our meeting we narrowed down three main scenarios; forest fires, urban earthquakes, and highway blizzards. Dr. Kremens went into detail about the different types of forest fires and how they should act in our forest fire scenario. We chose to include surface fires and crown fires to simulate both slow and fast moving fires. Additionally, we are going to include terrain to represent the relatively less dangerous area left after a crown fire passes through.

A very important point that Dr. Kremens made was that in the continental United States (excluding Alaska) no matter where someone goes, they will only be at most about 50 miles from the nearest road. Therefore we have chosen to include a road in every simulation. In all cases we will include ways to obstruct the road in a manner that forces the best path to change.

### **Dr. Salvaggio**

Dr. Salvaggio was very knowledgeable on 3D mapping software and vision systems in general. He described a project he is involved with that uses real-time orthomosaic mapping. He also provided some resources called Pix4D and agisoft photoscan using RIT licenses. Unfortunately most of the things he described were far out of the current scope of the project, but he will be very helpful to stay in touch with for vision system troubleshooting and future iterations of the project.

### **Dr. Aardt.**

Dr. Aardt had much experience with mapping techniques using LIDAR and other laser systems. Dr. Aardt has provided us with contact information with a student who will be finishing a 3D mesh project that he offered for us to use in our project. Unfortunately we have decided 3D mapping is out of our current scope.

He also sent us a dissertation by a recent graduate that is about a very similar topic as the ASAR System. It is mostly concerned with the mapping of road obstructions after earthquakes to update directions sent to first responders in countries without consistent GPS maps.