

## **Engineering networked tracking devices for smart medical and emergency**

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We propose to improve training of emergency responders and medical personnel in high-stakes situations. Our team has demonstrated, during a simulated rescue operation, the acquisition of data for over one hour (see below for results). Real-time tracking of personnel, and of critical equipment, as well as fast feedback, will be leveraged for training of all involved personnel and for data analysis. For our project to be successful, there are challenges in multiple fields: engineering (how to accurately track personnel and equipment; how to demonstrate that a blood pressure monitor was used, and which values it returned; who should receive data in real-time and which level of detail to provide in an emergency); learning technologies (see below); data visualization (how to map and show data in real-time); human factors, software engineering, and machine learning.

The co-directors have engaged with community partners and with companies that can provide technology relevant to our objectives. Community partners are Inova Fairfax Medical Campus and Fairfax Fire & Rescue. Relevant companies can be divided in hardware providers and software providers. Companies involved with the hardware to be leveraged in our project are: BLine Medical and Radius Networks; software and cloud providers are YetAnalytics and Advanced Distributed Learning (ADL).