Exceptional service in the national interest

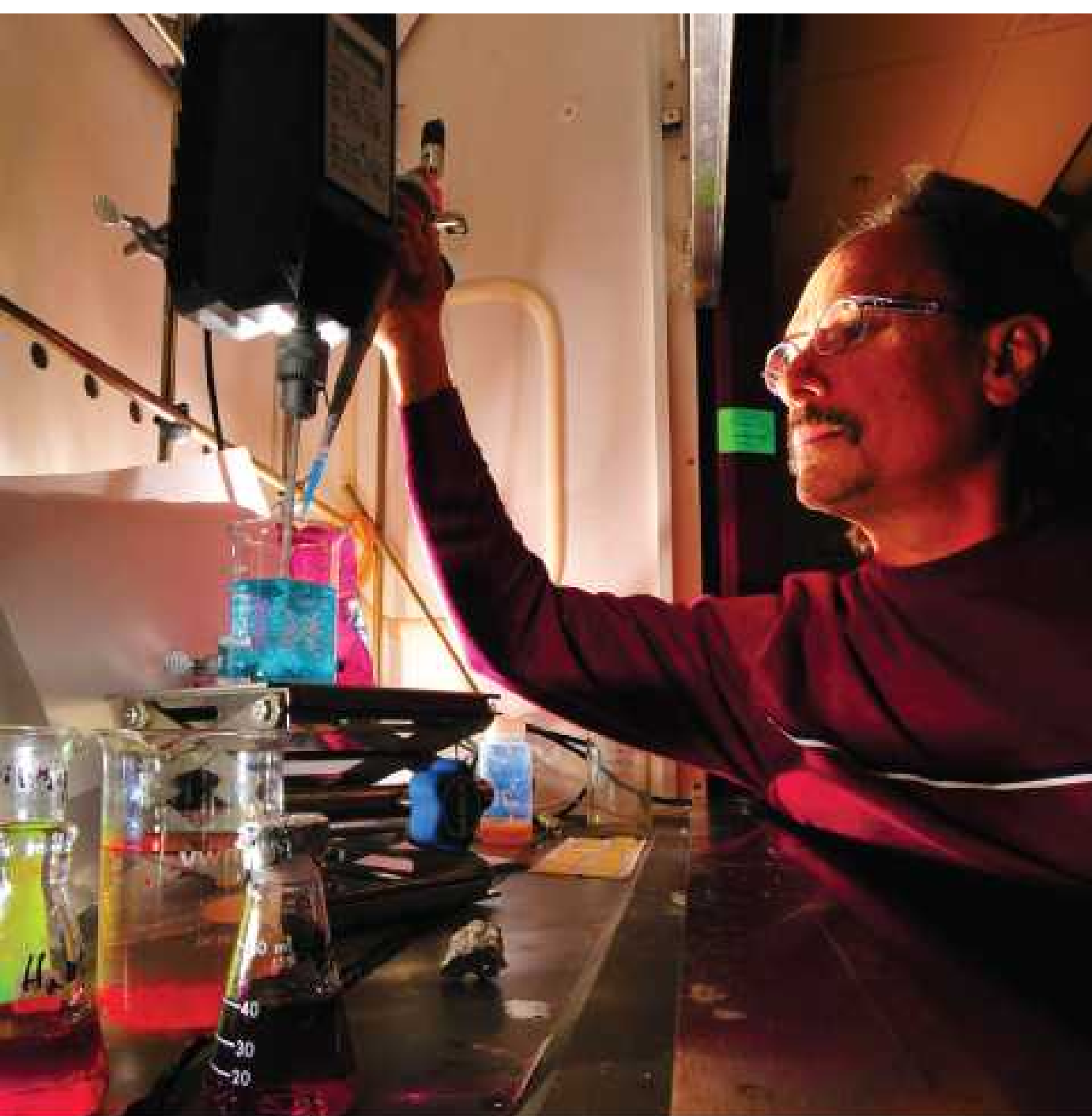**Sandia National Laboratories**

UIUC Campus Visit

November 20, 2013

Sandia National Laboratories actively works in all domains of computer science, including architecture and signal processing. We will give a broad overview of CS work Sandia, then Dr. Fred Rothganger will present an exciting new direction for the post "Moore's Law" era: brain-inspired computing. We are developing both new hardware and new algorithms to provide energy efficient solutions to difficult problems in data analysis and decision making. Finally, Antonio Gonzales will talk about some of the challenging work Sandia does in the field of remote sensing using infrasound as an example.

Infrasound is very low-frequency sound that can travel for hundreds or thousands of kilometers, and is produced by things such as missile launches, artillery, explosions, and the recent meteor strike in Chelyabinsk, Russia. Infrasound signals can be monitored and analyzed for national security missions. Sandia National Labs created the INPULSE software package to detect and analyze events in infrasound data. INPULSE filters data, performs spectral analysis, locates events, and presents results on a virtual globe. It combines a Java user interface and a MATLAB computation engine to allow for both day-to-day analysis and a core tool for infrasound research.