

SETH D. HUMPHRIES

(123) 456-7891

myownemail@someHost.com

Applied mathematics, science, and instrumentation background. Mathematical modelling of sensors and phenomena. Complex multi-variate data analysis and visualization with such tools as Matlab, [The Unscrambler & R](#). Remote sensing equipment interface, data capture, control interfaces (computer programming), signal processing and fourier analysis. Excellent communication (oral and written); able to translate from customer desires to scientific speak to machinists to management.

- Multivariate Analysis
- Mathematical Modelling
- Remote Sensing
- Calibration
- Lasers
- Optics
- LIDAR
- Hyper-Spectral Instrumentation
- Data Automation
- Data Fusion & Visualization
- Windows/PC
- Matlab
- C++
- Spectroscopy
- Stable Isotopes
- Leadership

Related Experience

Product Development Scientist

Apogee Instruments, Logan, UT; December 2010–December 2011

- Conceived, designed and field tested new instrument prototypes; new products such as temperature shield and quantum sensor based on miniature spectrometer.
- Designed and led workers installing large, outdoor test facility allowing rapid testing of prototypes.
- Programmed building heating, ventilation and air conditioning (HVAC) system, fused data from multiple sources and programmed web user interface/visualization.
- Led project to convert sensors with analog output to digital output.

Post-Doctoral Researcher

Los Alamos National Laboratory Chemistry Division, Physical Chemistry and Spectroscopy Group, Los Alamos, NM; December 2008–Jan 2011

- Built unique laser-based instruments, including eye-safe LIDAR, for measurements, in rugged environments, of the abundance ratio of stable isotopes $^{13}\text{CO}_2$ to $^{12}\text{CO}_2$.
- Built automated GUI, using LabView, for non-expert users to control instrumentation, gather data from multiple sources, perform data fusion and analysis, and display accurate results.
- Performed remote [LIBS \(Laser-Induced Break-Down Spectroscopy\)](#) experiments and complex data analysis, including pre-flight data capture, multivariate statistical analysis (PLS and PCA) for [ChemCam](#) verification.

Graduate Research Assistant

Montana State Univ. Electrical and Computer Engineering Department, Bozeman, MT; August 2005–November 2008

- Built and performed field measurements with unique tunable-laser absorption spectroscopy instrument designed to measure CO_2 in the atmosphere above a hay field.

Scan for more information



- Created stand-alone GUI, using MatLab, to control laser instrumentation, process signal returns and display intuitive results.

Undergraduate Research Assistant

USU Plant, Soils and Climate Department, Logan, UT

- Developed, built and calibrated soil-water-content-measurement instruments such as Time Domain Reflectometry (TDR) probes.
- Developed, built and performed fluid movement experiments in *zero and 2x gravitational environments* for *space-plant-growth studies*.
- Developed analysis algorithms for *WinTDR*.

Education

PhD in Engineering, Electrical Engineering Option, September 2008

Montana State University, Bozeman, MT

- Dissertation: *Carbon Dioxide Sequestration Monitoring and Verification Via Laser Based Detection System in the 2 μ m Band*.
- GPA: 3.85

MS in Electrical Engineering, December 2005

Utah State University, Logan, UT

- Thesis: *Calibration and Results of the EQUIS II Plasma Impedance Probe (PIP)*
- GPA: 3.63*

Double BS in Electrical Engineering and Mathematics, December 2005

Utah State University, Logan, UT

- Minors: *Computer Science & Spanish*
- GPA: 3.63 (Undergraduate total)*

* Graduate and undergraduate GPAs calculated separately

Selected Honors and Accomplishments

Published several news articles. One of which was about the Curiosity Mars rover, November 2011. See <http://www.ksl.com/?nid=968&sid=18124321>

LANL "On the Spot Award" for "Working beyond the call of duty." September 2009

Thesis/Dissertation Template

- Built, actively maintain and webhost style guide (template), using L^AT_EX language, to build graduate student theses or dissertations.
- Style guide adheres to strict guidelines required at Montana State University.

Valedictorian, 1995, Tooele High School, Tooele, UT

Eagle Scout in Boy Scouts of America