

*I love creating measurement and analysis techniques and putting them to practical application. I originally started developing NMR sensors at UC Berkeley due to its challenging mixture of basic physics, instrument design, and data analysis problems. In industry, my development of oil well sensors and analysis tools has broadened this experience to obtaining results from real world datasets, and my current work at NEST in software and manufacturing best practices. I am always looking for opportunities to advance how people see the world through analysis and measurement.*

- Education**      **University of California, Berkeley, CA USA (GPA: 4.0)**  
**Ph.D., Physical Chemistry, Aug 2005 - Oct 2009**
- **Thesis:** “The Design and Application of an Adjustable NMR Sensor and The MRI Imaging of Flow in Microfluidics with Remote Detection.”
  - **Advisor:** Alexander Pines
- Pennsylvania State University, State College, PA USA (GPA: 3.92, with Honors in Chemistry)**  
**BS, Mathematics and Chemistry, 2001 - 2005**
- **Thesis:** “Investigating a Monte Carlo Method for Simulating Gas Phase Reactions”
- Experience**      **Zenith Talent at NEST Labs (Google): Palo Alto, CA USA**  
**Sensors Software Engineer: May 2017 – Present**  
Software and tester development for product development, data analysis, manufacturing, and new sensor evaluation.
- Schlumberger-Doll Research, Boston, MA USA**  
**Research Scientist, Dec 2011 – Sept 2015**  
**Postdoctoral Researcher, Dec 2009 – Nov 2011**  
Research for Schlumberger’s commercial NMR measurements to characterize oil reservoir rocks and fluids including laboratory techniques and sensors for use within oil wells.
- Prototyped new sensors and analysis methods for oil well applications, focusing on improving their speed, sensitivity, and interpretation.
  - Developed new measurement applications and data analysis schemes.
    - Adapted new reconstruction methodologies to speed up measurements (4-16x).
    - Developed methods to infer oil composition and production potential.
  - Collaborated with multiple academia labs in chemistry, physics and engineering to adapt tracers and techniques used in medicine, and create miniaturized single chip hardware.
  - Mentored and trained 9 Interns
  - 5 Patent Applications, +14 Publications
- University of California, Berkeley, CA USA**  
**Graduate Student Researcher, Nov 2005 - Oct 2009**  
Portable NMR sensors and the MRI imaging of microfluidics.
- Invented and built a portable NMR sensor with a large effective detection volume.
  - Developed a method for high-resolution MRI flow imaging of microfluidic devices.
  - Graduate student instructor for 3 classes: Freshman chemistry (Chem1A), general chemistry and quantitative analysis (Chem 4b) and physical chemistry (Chem120A).
- Honors**      Giulio Cesare Borgia Prize, MRPM 12, *Wellington New Zealand, Feb. 2014*  
Phi Beta Kappa, 2004  
Mathematics Adv. Study Semesters Program, *Fall 2003*  
Golden Key International Honors Society, 2003
- Skills**      **Programming:** Python (Pandas / SciPy), Matlab, SWIFT, Obj-C, git, Arduino; *Occasional:* C, R, Java, SQL  
**Data:** Signal Processing, Consistency Testing, Multi-dimensional data analysis, Inversion (Linear regression, Compressed Sensing, Fourier Analysis, decay spectra/III-Conditioned Linear systems), Comsol  
**R&D:** Sensors, Physical Chemistry, Physics, NMR/MRI, TD-NMR
- Publications**      25: for a complete list please see: <http://tinyurl.com/JLPaulsenArticles>