Jeffrey L. Paulsen

Data Analysis, Software Development and Physics

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I love developing measurement and analysis techniques and putting them to practical application. I originally went into developing measurement tools at UC Berkeley as a graduate student due to its challenging mixture of instrument design, control and data analysis problems. My work in oil well analysis tools has broadened this experience to obtaining results from real world datasets, and my current work in software and manufacturing best practices. I am currently looking for the chance to apply my skills to cutting edge technologies and applications.

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/Ill-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*