

I love creating measurement and analysis tools and putting them to practical application. I originally started developing MRI sensors at UC Berkeley due to its challenging mixture of basic physics, programming, instrument design, and data analysis problems. In industry, developing oil well sensors broadened this experience to obtaining results from real world datasets; and since moving to software engineering at Nest Labs, on programming, hardware, and manufacturing best practices.

Experience	PreData: New York, NY Software platform engineer focusing on systems performance optimization, customer metrics, and frontend testing. (Python, Django, pandas)	Software Platform Engineer: Oct 2019 - Dec 2019
	Zoox: Foster City, CA Ownership for the software related development, testing, and support of several networking and telecommunication systems for autonomous vehicles and for data ingest. (Python, C/C++, BASH)	Software Engineer: Oct 2018 - Sept 2019
	Zenith at NEST (Google): Palo Alto, CA Software, firmware and tester development for sensor evaluation, product development, data analysis, and manufacturing utilizing a variety of software build, version control tools and languages (e.g. C/C++, Python, Obj-C).	Sensors Software Engineer: May 2017 – Oct 2018
	Schlumberger-Doll Research, Boston, MA USA Research for Schlumberger's commercial NMR measurements to characterize oil reservoir rocks and fluids including laboratory techniques and sensors for use within oil wells. <ul style="list-style-type: none">• Prototyped new MR sensors and analysis methods for oil well applications, focusing on improving their speed, sensitivity, and interpretation.• Developed new measurement applications and data analysis schemes.<ul style="list-style-type: none">○ Created novel diffusion based encoding schemes and analytical pulse sequence analysis tools.○ Adapted compress sensing data reconstruction to speed up imaging 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 medical MRI, and create miniaturized single chip hardware.• Mentored and trained 9 Interns• 10 Patent Applications, +14 Publications	Research Scientist, Dec 2009 – Sept 2015
	University of California, Berkeley, CA USA Graduate Student Researcher, Nov 2005 - Oct 2009 Portable NMR sensors and the MRI imaging of microfluidics. <ul style="list-style-type: none">• 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.	
Education	Pennsylvania State University, State College, PA USA (GPA: 3.92, <i>with Honors in Chemistry</i>) BS, Mathematics and Chemistry, 2001 - 2005 <ul style="list-style-type: none">• Thesis: "Investigating a Monte Carlo Method for Simulating Gas Phase Reactions"	
	University of California, Berkeley, CA USA (GPA: 4.0) Ph.D., Physical Chemistry, Aug 2005 - Oct 2009 <ul style="list-style-type: none">• Thesis: "The Design and Application of an Adjustable NMR Sensor and The MRI Imaging of Flow in Microfluidics with Remote Detection."• Advisor: Alexander Pines	
Skills	Programming: Python (Pandas / SciPy), C/C++, Matlab, BASH, R, Obj-C / Swift, git Data: Signal Processing, Consistency Testing, Multi-dimensional data analysis, Inversion (Linear regression, Compressed Sensing, Fourier Analysis, decay spectra/Ill-Conditioned Linear systems) R&D: Sensors, Physical Chemistry, Physics, NMR/MRI, TD-NMR, Comsol,	

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*

Publications

22 Journal Publications
11 Patents
5 Conference Talks

for a complete list please see: <http://tinyurl.com/JLPaulsenArticles>