

MATTHEW A. KREMS, PH.D.

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- Trained physicist with ability to deconstruct and develop creative solutions to complex problems
- Strong background in software development, software testing, stochastic processes, numerical modeling, systems integration, and project management
- Computer skills - Python, Java, C/C++, Fortran, Perl, VBA, HTML, CSS, JavaScript, PHP, OOP, Windows, Linux
- Extensive client-facing experience and ability to understand business needs
- Ability to effectively communicate complicated ideas in both written and oral forms
- Passion for independent learning, highly organized, and efficient problem solver

Education	University of California, San Diego Ph.D. in Physics with thesis entitled "Particle Dynamics in Nanopore Systems" GPA: 3.9/4.0 GRE: 800Q, 590V, 820Physics	San Diego, CA June 2011
	Missouri University of Science and Technology B.S. in Physics with minors in Mathematics and English Literature GPA: 4.0/4.0 ACT: 32	Rolla, MO May 2005
Experience	Princeton Consultants Inc. <i>Senior Associate</i>	New York, NY 2013-Present
	<ul style="list-style-type: none">➤ Managed and coordinated dozens of people for field testing of a safety-critical multi-billion dollar Positive Train Control (PTC) system affecting thousands of locomotives and wayside devices and tens of thousands of miles of track➤ Implemented extensive automation and streamlining of various test processes resulting in a significant decrease in the time it takes to go from test planning to test execution➤ Gained extensive knowledge and deep understanding of requirements specifications for several subcomponents of the PTC system as well as overall railroad operations➤ Key trainer, mentor, and leader of multiple personnel on the test team➤ Developed a desktop application written in Jython using the Swing GUI to perform a comparison of dispatching and wayside equipment database files	
	American Journal Experts <i>Contract Editor</i>	Durham, NC 2012
	<ul style="list-style-type: none">➤ Proofread academic manuscripts for grammatical and lexicographical errors	
	University of California, San Diego <i>Graduate Student Researcher</i>	San Diego, CA 2007-2011
	<ul style="list-style-type: none">➤ Performed independent, novel scientific research to make predictions and solve problems in nanotechnology, in particular related to next-generation DNA sequencing techniques, resulting in several publications in major academic journals and numerous talks given at international conferences➤ Extensive use of Python for data analysis of large molecular dynamics datasets containing trajectories of hundreds of thousands of particles➤ Developed quantum mechanical electron transport code in Fortran to calculate current across a DNA base➤ Maintained and utilized a 100+ CPU Linux cluster to perform large-scale, complex computational research	
	Pacific Northwest National Laboratory <i>Summer Research Assistant</i>	Richland, WA 2005
	<ul style="list-style-type: none">➤ Design and performed experimental studies of a nuclear detection device➤ Developed numerical simulations to study beta attenuation in organic and inorganic materials	
	Los Alamos National Laboratory <i>Summer Research Assistant</i>	Los Alamos, NM 2004
	<ul style="list-style-type: none">➤ Performed quantum information research relating to the measurement of entangled photons➤ Wrote Fortran code to do tomographic reconstructions of quantum states using a maximum likelihood function	
Academic Honors	<ul style="list-style-type: none">➤ Full monetary support awarded to attend the 2010 Summer School in Biophysics at UT/ORNL➤ APS Division of Chemical Physics 2009 March Meeting Travel Award➤ Kennedy Reed Award for Best Theoretical Research, CA APS Meeting 2008➤ GAANN Fellowship awarded by UCSD Physics Department➤ High School Valedictorian	