

# Daniel Hellfeld, Ph.D.

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CONTACT	Lawrence Berkeley National Laboratory 1 Cyclotron Rd. (B50C - 3315) Berkeley, CA 94720	1.949.680.9345 dhellfeld@lbl.gov   dhellfeld@gmail.com dhellfeld.github.io   linkedin.com/in/dhellfeld
SUMMARY	Applied research scientist leveraging computer vision and machine learning techniques to solve complex inversion problems. 5+ years experience in developing, testing and deploying software for anomaly detection, image reconstruction and real-time 3D mapping.	
EDUCATION	<b>Doctor of Philosophy (Ph.D.)</b> , Nuclear Engineering (4.0/4.0) <i>University of California, Berkeley</i> ◦ Thesis: “Free-moving Omnidirectional 3D Gamma-ray Imaging and Localization” <b>Aug 2015 - Jul 2019</b> <b>Master of Science (M.S.)</b> , Nuclear Engineering (4.0/4.0) <i>Texas A&amp;M University</i> ◦ Thesis: “Feasibility of Remote Nuclear Reactor Antineutrino Directionality via Elastic Electron Scattering in the WATER Cherenkov Monitor of ANTineutrinos (WATCHMAN)” <b>Aug 2013 - May 2015</b> <b>Bachelor of Science (B.S.)</b> , Physics (3.89/4.0) <i>University of California, Santa Barbara</i> <b>Sep 2009 - Jun 2013</b>	<b>Berkeley, CA</b> <b>College Station, TX</b> <b>Santa Barbara, CA</b>
RESEARCH EXPERIENCE	<b>Senior Scientific Engineering Associate</b> <i>Applied Nuclear Physics Group, Lawrence Berkeley National Lab</i> ◦ Real-time 3D mapping with contextual and radiological data streams. ◦ Object detection and tracking in LiDAR point clouds with sparse CNNs. ◦ Anomaly detection algorithm development for a city-scale network of multi-sensor systems. <b>Research Fellow</b> <i>Nuclear Science and Security Consortium, UC Berkeley</i> ◦ Novel experimental demonstration of real-time omnidirectional 3D active coded mask imaging. ◦ Fusion of contextual sensors and computer vision with gamma-ray image reconstruction. <b>Physics Intern</b> <i>Rare Event Detection Group, Lawrence Livermore National Lab</i> ◦ Monte Carlo simulations and statistical data analysis for a proposed antineutrino detector. ◦ Studied the feasibility of remote nuclear reactor directionality with electron scattering.	<b>Aug 2019 - Present</b> <b>Berkeley, CA</b> <b>Nov 2014 - Jul 2019</b> <b>Berkeley, CA</b> <b>Jun - Aug 2015/2014</b> <b>Livermore, CA</b>
TEACHING EXPERIENCE	<b>Lecturer</b> , NE 104, NE 107 <i>Department of Nuclear Engineering, UC Berkeley</i>	<b>Jan - May / Sep - Nov 2018</b> <b>Berkeley, CA</b>
SCIENTIFIC COMPUTING SKILLS	<b>Languages:</b> <b>Machine Learning:</b> <b>Build Systems:</b> <b>Operating Systems:</b> <b>Robotics:</b> <b>GPU Programming:</b> <b>CI/CD:</b> <b>Other:</b>	Python, C++, bash PyTorch, TensorFlow make, CMake, ninja, catkin macOS, Linux, Windows ROS OpenCL, OpenGL, CUDA TravisCI, Docker git, L <sup>A</sup> T <sub>E</sub> X, Geant4, ROOT
AWARDS	<b>R&amp;D 100 Award Winner</b> , R&D World Magazine, WTWH Media <b>Best Paper Award</b> , UC Berkeley NE Dept. <b>Runner-up Student Paper Competition</b> , IEEE NSS-MIC <b>Best Oral Presentation</b> , University Program Review Meeting <b>Best Poster Award</b> , INMM Annual Meeting <b>Highest Academic Honor Award</b> , UC Santa Barbara, Physics Dept. <b>Highest Honors</b> , UC Santa Barbara	<b>Nov 2019</b> <b>Dec 2018</b> <b>Oct 2017</b> <b>Jun 2017</b> <b>Jul 2015</b> <b>May 2013</b> <b>May 2013</b>
REFERENCES	<i>Available upon request.</i>	