



Numerical Optimization Algorithms for Scientific Problems at Argonne National Laboratory

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[Dr. Jeffrey Larson](#)

Numerical optimization problems appear throughout the department of energy, including in particle accelerator design, autonomous vehicle routing, and quantum information sciences. This talk will highlight how domain-specific problem knowledge motivates the development of specialized numerical optimization methods. Open problems and active areas of research will be featured.

Dr. Larson is the Argonne lead for the Fundamental Algorithmic Research for Quantum Computing (FAR-QC) project where he develops numerical optimization methods to solve problems in the quantum information sciences. He is a member of Q-NEXT, one of five National Quantum Information Science Research Centers awarded by the Department of Energy in August 2020. He is a lead developer of libEnsemble, a Python library to coordinate the concurrent evaluation of ensembles of computations. He also leads the Numerical Optimization Area in the FASTMath SciDAC Institute. He has developed APOSMM, an asynchronously parallel optimization solver for finding multiple minima, and other derivative-free optimization algorithms that exploit problem structure in scientific applications. He studies approaches for the fuel-efficient routing of autonomous vehicles through road networks. Jeff joined Argonne in 2014 as a postdoctoral appointee. He was previously a postdoctoral researcher with the Royal Institute of Technology KTH in Sweden. He earned his Ph.D. in applied mathematics from the University of Colorado Denver in 2012.

DATE: MONDAY, November 7, 2022

Seminar TIME: 3:00 – 4:30 PM

ZOOM LINK TO REGISTER FOR REMOTE ACCESS:

(US MOUNTAIN TIME)

<https://us06web.zoom.us/j/84232212794>

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