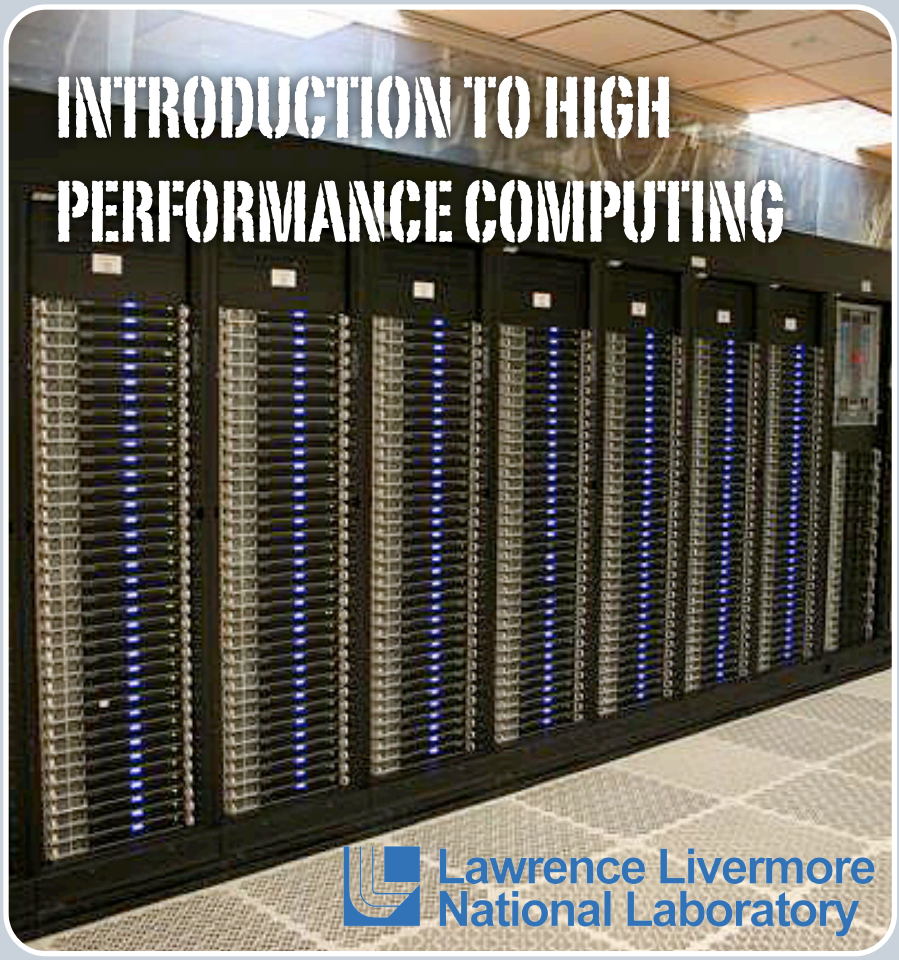

Jeff Amelang

Jeff is a PhD student at the California Institute of Technology. He is an expert in HPC, having worked at Caltech on atomistic MD and at Lawrence Livermore National Laboratory on load balancing of very large simulations

Caltech Invited Speaker Lecture Series on HPC (High Performance Computing)

High Performance Computing (HPC) is the cutting edge of computational capability, where the largest and fastest computers in the world are used to solve problems in physics, chemistry, biology and engineering. These computers are programmed for speed of execution and the programs written for them are written specifically to use these computers optimally. Learning the basics of HPC is essential for any programmer that is interested in doing research in scientific computing. The techniques learned in HPC are also very useful as the hardware innovations that drive the cutting edge of computing today are the technologies of mainstream computing tomorrow (massively parallel processing, GPGPU, etc). Any programmer who writes calculation-intensive code benefits from these techniques.

The lecture series is an introduction to the world of HPC and the techniques used in this field, and is open to all Computer Science and Science Majors.

LOCATION&TIME	MARCH 25 MON	MARCH 26 TUE	MARCH 27 WED	MARCH 28 THU
MATHEMATICUM LECTURE ROOM E 17:00-20:00	Single Core: cache awareness, data locality, boundedness, vectorization	Threading: introduction, pthreads, openmp, intel threading building blocks	Parallelization paradigms, clusters, communication, load balancing	Coprocessors (GPUs, intel phi) software tools, data structures