

# How to use BLAS and LAPACK with C Programming



## Speaker Profile:

**Henry R. Moncada** is a Ph.D Student in the Computational Science Program at UTEP. He has a BS in Physics from Universidad Nacional Mayor de San Marcos (Peru) and an MS in Applied Mathematics from the University of New Mexico. He was president of UTEP-SIAM Chapter on 2014. He was also the recipient of the Good Neighbor Scholarship from 2013 to 2016 and current ASTRO program participant at Oak Ridge National Laboratory (ORNL).

## ABSTRACT:

**BLAS (Basic Linear Algebra Subprograms)** is a collection of low-level matrix and vector arithmetic operations, for performing common linear algebra operations such as vector addition, scalar multiplication, dot products, linear combinations, and matrix multiplication, and **LAPACK (Linear Algebra Package)** is a collection of higher-level linear algebra operations that provides routines for solving systems of linear equations such as matrix factorizations (LU, LLt, QR, SVD, Schur, etc), linear least squares, eigenvalue problems, and singular value decomposition. LAPACK is built on top of the BLAS; many users of LAPACK only use the LAPACK interfaces and never need to be aware of the BLAS at all. In addition, BLAS and LAPACK are incorporated on other computer programs and you used without knowing it. For example, MATLAB uses the Intel Math Kernel Library (MKL) behind the scenes to perform many linear algebra operations.

**Date:** Friday, April 28th

**Time:** 12:00pm

**Location** CRBL 402.

Free **snacks & refreshments** courtesy of the SIAM Student Organization and the UTEP Student Government Association.

