

## **Building graph algorithms with the GraphBLAS**

We typically think of a graph as a set of vertices and a set of edges between vertices. However, we can also represent a graph as a sparse matrix. For example, we can represent a graph as an adjacency matrix where the rows and columns are labeled by the vertices and non-zero matrix elements correspond to edges. Using matrices to represent graphs turns graph algorithms into a sequence of linear algebra operations; letting us use decades of experience in sparse linear algebra to help us more effectively solve graph problems. In this hands-on tutorial, you will work with the GraphBLAS; a standard set of building blocks for working with graphs “in the language of linear algebra”. Using your own laptop, we will show you how to load the GraphBLAS onto your system and use them to build a few representative graph algorithms. This tutorial stresses “learning by doing” so come prepared with basic programming skills and a laptop loaded with C and C++ compilers.