

Outline

We will skip the abstract vector space for the moment. Instead, we will focus on null space and spanning set with respect to a $m \times n$ matrix A . Use them as motivating examples of subspaces in usual $\mathbb{R}^n; \mathbb{R}^m$: You can skip those examples involving functional spaces now. I will come back to them later on.

Starting from Chapter 3, we are now having the main course of LA. You might feel it is abstract at first. Once you learn the language, it is as easy as your high school math!

1. Chapter 3. Vector Space. Now we are cooking!
2. Recall $AX = b$ is consistent if and only if b can be written as linear combination of column vectors of A . Solutions exist? Unique? We need the following magic terms and concept to answer these questions in a systematic way.
3. Euclidean vector spaces, (proper) subspaces.