

## Video: “MATLAB linear representation of arrays” (01:30 min):

### Slide 1 “Linear Representation” (00:00):

This short video talks about linear representation of arrays in MATLAB. MATLAB actually stores arrays in column order- that is it puts the columns end to end starting with the first column. We can treat any array as a single column of values by using its linear representation, which is the array name followed by a colon in parentheses. This is useful for applying an operation such as sum to a whole array to get a single value.

### Slide 2 “Example” (00:30):

Let’s look at an example. Here we have an array A with two rows and three columns. We can enter this array in MATLAB using commas to separate values on the same row and a semicolon to separate the rows. The linear representation of A is a single column with the first column of A: [1; 4] followed by the second column [2; 5] followed by the third column. The linear representation is shown in MATLAB by having the elements separated by semicolons.

### Slide 3 “Two special cases” (01:09):

Now let’s look at two special cases. When A is a single row, the linear representation is a single column, with the values of 1, 2, and 3 in the same order. When A is a single column, the linear representation doesn’t change anything at all. The linear representation is very useful for reshaping the array or for applying an operation such as sum to the entire array.