

Welcome

- ✓ **Video:** Welcome to Machine Learning!
1 min
- ✓ **Reading:** Machine Learning Honor Code
8 min

Introduction

- ✓ **Video:** Welcome
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- ✓ **Video:** What is Machine Learning?
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- ✓ **Reading:** What is Machine Learning?
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- ✓ **Reading:** How to Use Discussion Forums
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- ✓ **Reading:** Get to Know Your Classmates
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Review

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20 min
- ✓ **Quiz:** Introduction
5 questions

Model and Cost Function

- ✓ **Video:** Model Representation
8 min
- ✓ **Reading:** Model Representation
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Inverse and Transpose

The **inverse** of a matrix A is denoted A^{-1} . Multiplying by the inverse results in the identity matrix.

A non square matrix does not have an inverse matrix. We can compute inverses of matrices in octave with the $\text{pinv}(A)$ function and in Matlab with the $\text{inv}(A)$ function. Matrices that don't have an inverse are *singular* or *degenerate*.

The **transposition** of a matrix is like rotating the matrix 90° in clockwise direction and then reversing it. We can compute transposition of matrices in matlab with the $\text{transpose}(A)$ function or A' :

$$A = \begin{bmatrix} a & b \\ c & d \\ e & f \end{bmatrix}$$

$$A^T = \begin{bmatrix} a & c & e \\ b & d & f \end{bmatrix}$$

In other words:

$$A_{ij} = A_{ji}^T$$

```
1 % Initialize matrix A
2 A = [1,2,0;0,5,6;7,0,9]
3
4 % Transpose A
5 A_trans = A'
6
7 % Take the inverse of A
8 A_inv = inv(A)
9
10 % What is A^(-1)*A?
11 A_invA = inv(A)*A
12
13
```

Run

Reset

✓ Complete

Go to next item

