An Introduction to Wellesley Publishers (India)

Gilbert Strang (MIT)

Indian students and faculty and engineers and scientists have been the most faithful viewers of the MIT video lectures on linear algebra. Thank you for all the generous emails you have sent ! I try to reply to all of them. Now this message is about something new in 2020.

We have created **Wellesley Publishers** (**www.wellesleypublishers.com**) in India, modeled on Wellesley-Cambridge Press in Boston. The plan is to publish Indian editions of our two most popular books :

Introduction to Linear Algebra, 5th edition by Gilbert Strang

Linear Algebra and Learning from Data by Gilbert Strang

These are leading textbooks in the world market, written as texts for two MIT courses :

Mathematics 18.06 : Linear Algebra   math.mit.edu/linearalgebra

Mathematics 18.065 : Learning from Data   math.mit.edu/learningfromdata

My video lectures for these courses are on MIT's OpenCourseWare site and also on YouTube :

Linear Algebra

ocw.mit.edu/courses/mathematics/18-06-linear-algebra-spring-2010/video-lectures/

www.youtube.com/playlist?list=PL49CF3715CB9EF31D (Spring 2005)

www.youtube.com/playlist?list=PL221E2BBF13BECF6C (Fall 2011)

Learning from Data

ocw.mit.edu/courses/mathematics/18-065-matrix-methods-in-data-analysis-signal-processing-and-machine-learning-spring-2018/video-lectures/

www.youtube.com/watch?v=Cx5Z-OslNWE

More than 12 million viewers worldwide have watched those video lecturers. It is safe to say that more than one million were viewing from India ! This is appreciated very much.

Linear algebra has surged in importance. It was always a beautiful subject, and now the applications of matrices are everywhere. You will see the familiar MIT linear algebra course in the books and video lectures. Here is a short outline :

1. **The Fundamental Theorem of Linear Algebra**. This expresses the dimensions and orthogonality and optimal bases for 4 subspaces :
   Column space of A, Row space of A, Nullspace of A, Nullspace of A^{T}.

2. **Eigenvalues and Singular Values**. $Ax = \lambda x$ gives the eigenvalues of a square matrix. $Av = \sigma u$ gives the singular values of any matrix. If A is symmetric with positive eigenvalues, then those are also the singular values of A. Data matrices are usually rectangular, and then the eigenvalues of $A^{\mathrm{T}}A$ lead to the singular values of A.

3. The key ideas of linear algebra are beautifully expressed as **factorizations of a matrix**.

Students see the importance of these ideas—**explained and proved and applied**. This subject has moved forward. Please see the videos for 18.06 and 18.065, and the MIT textbooks now published for India : **www.wellesleypublishers.com** and **info@wellesleypublishers.com**.

Thank you.