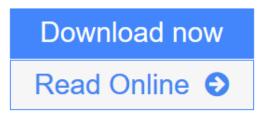# Coding the Matrix: Linear Algebra through Computer Science Applications

Philip N. Klein

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An engaging introduction to vectors and matrices and the algorithms that operate on them, intended for the student who knows how to program. Mathematical concepts and computational problems are motivated by applications in computer science. The reader learns by "doing," writing programs to implement the mathematical concepts and using them to carry out tasks and explore the applications. Examples include: error-correcting codes, transformations in graphics, face detection, encryption and secret-sharing, integer factoring, removing perspective from an image, PageRank (Google's ranking algorithm), and cancer detection from cell features. A companion web site, codingthematrix.com provides data and support code. Most of the assignments can be auto-graded online. Over two hundred illustrations, including a selection of relevant "xkcd" comics.
Chapters: "The Function," "The Field," "The Vector," "The Vector Space," "The Matrix," "The Basis," "Dimension," "Gaussian Elimination," "The Inner Product," "Special Bases," "The Singular Value Decomposition," "The Eigenvector," "The Linear Program"

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From Reader Review Coding the Matrix: Linear Algebra through Computer Science Applications for online ebook

Randy says

Read through during first session of Coursera course on linear algebra - about to have another go when the class is repeated. So happy the examples are in Phython

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Matthew Talbert says

Very good introduction to linear algebra, particularly if you can write code in a modern language like Python.

Abakar Meremi Kolo says

Great

"What is twice read, is commonly better remembered than what is transcribed." Dr. Johnson
Play by the rules. Hard work, patience, and persistence bring personal insight and freedom.
Peace

Dien Dang says

Excellent book about linear algebra, especially about its application, the book covers almost all level of linear algebra, suitable for both beginner and experienced. Also, have a much practical code example to understand them deeply.