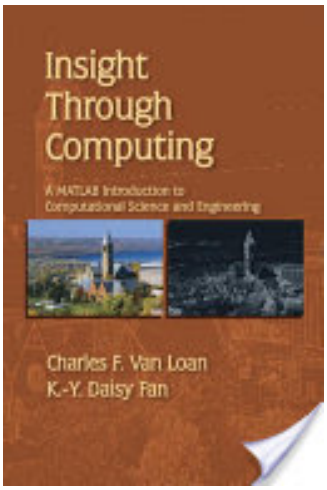

Insight Through Computing: A MATLAB Introduction to Computational Science and Engineering

- **Author : Charles F. Van Loan**
- **Publisher : SIAM, 2010**
- **pages : 434 pages**
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This introduction to computer-based problem-solving using the MATLAB environment is highly recommended for students wishing to learn the concepts and develop the programming skills that are fundamental to computational science and engineering (CSE). Through a 'teaching by examples' approach, the authors pose strategically chosen problems to help first-time programmers learn these necessary concepts and skills. Each section formulates a problem and then introduces those new MATLAB language features that are necessary to solve it. This approach puts problem-solving and algorithmic thinking first and syntactical details second. Each solution is followed by a 'talking point' that concerns some related, larger issue associated with CSE. Collectively, the worked examples, talking points, and 300+ homework problems build intuition for the process of discretization and an appreciation for dimension, inexactitude, visualization, randomness, and complexity. This sets the stage for further coursework in CSE areas.