MDI210 : Numerical Analysis and Continuous Optimization
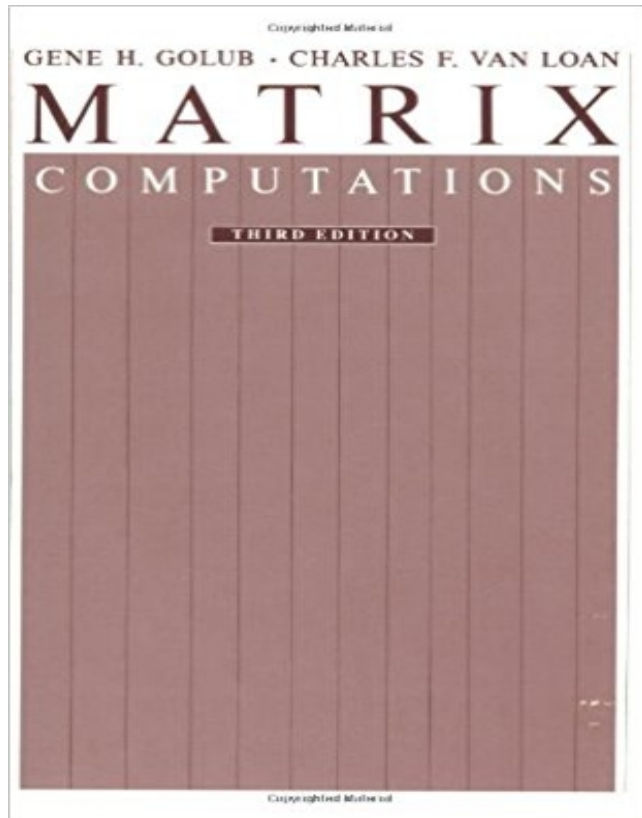
Robert M. Gower

TELECOM ParisTech

Core Info

- **Where** : Telecom ParisTech
- **Location**: Amphi Jade (Lecture) and C125, C126, C127 (TP)
- **Volume** : 25h
- **When** : 8 weeks
- **Exam: One exam** on 22nd of October
- **Online:** Find lecture notes on my homepage
  https://gowerrobert.github.io
- **Main reference:** MDI210 lecture notes
- **Exercices:** Do all exercises in the MDI210 lecture notes

Who am I?

Robert M. Gower

- Assistant prof at Telecom
- robert.gower@telecom-paristech.fr
- https://gowerrobert.github.io
- Research topics: Stochastic algorithms for optimization, numerical linear algebra, quasi-Newton methods and automatic differentiation (backpropagation).

Additional References for Numerical Analysis

Matrix Computations: Gene H. Golub and Charles F. Van Loan

Three copies in the library on the 8th floor!

Course Schedule

Date	What	Where
10th Sept	revision on matrices, solving linear systems	Amphi Jade
17th Sept	Eigenvalues and eigenvectors. Introduction to linear programming and simplex	Amphi Jade
19th Sept	Simplex in detail: degeneracy, cycling, Bland's theorem, finding an initial realizable basis, duality	Amphi Jade
25th Sept	Practical problem (TP) on simplex	C125, C126, C127
1st Oct	Unconstrained nonlinear optimization	Amphi Jade
8th Oct	Constrained nonlinear optimization	Amphi Jade
15th Oct	Practical problem (TP) on constrained optimization	C125, C126, C127
22nd Oct	EXAM!!!!	

Origins of "Gaussian" Elimination