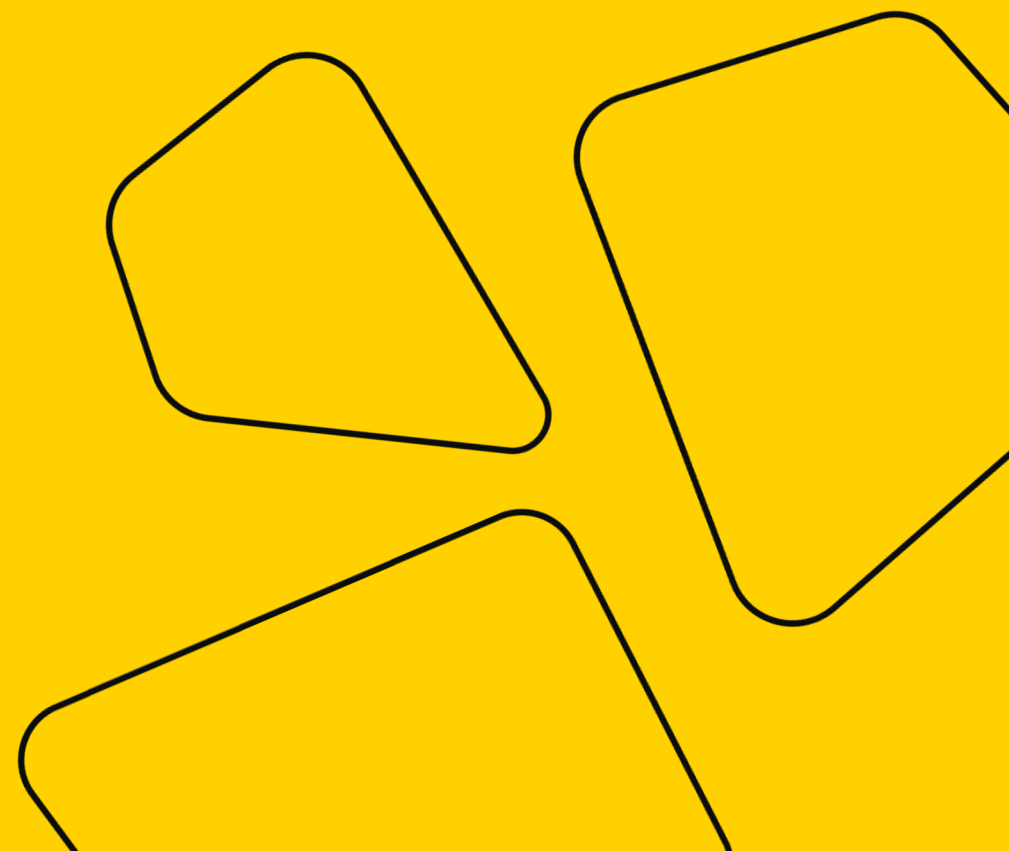





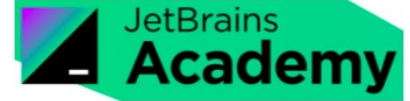


Math Refresher for DS

Introduction



About me

- Evgeniya Korneva
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 - in [evgeniyako](#)
- 🇷🇺 Moscow → 🇧🇪 Leuven → 📍 🇨🇪 Prague
- Ex- Data Scientist  **acmetric**
- PhD Researcher 
- Lecturer 
- Ex-head of DS Content 

Why do we care?

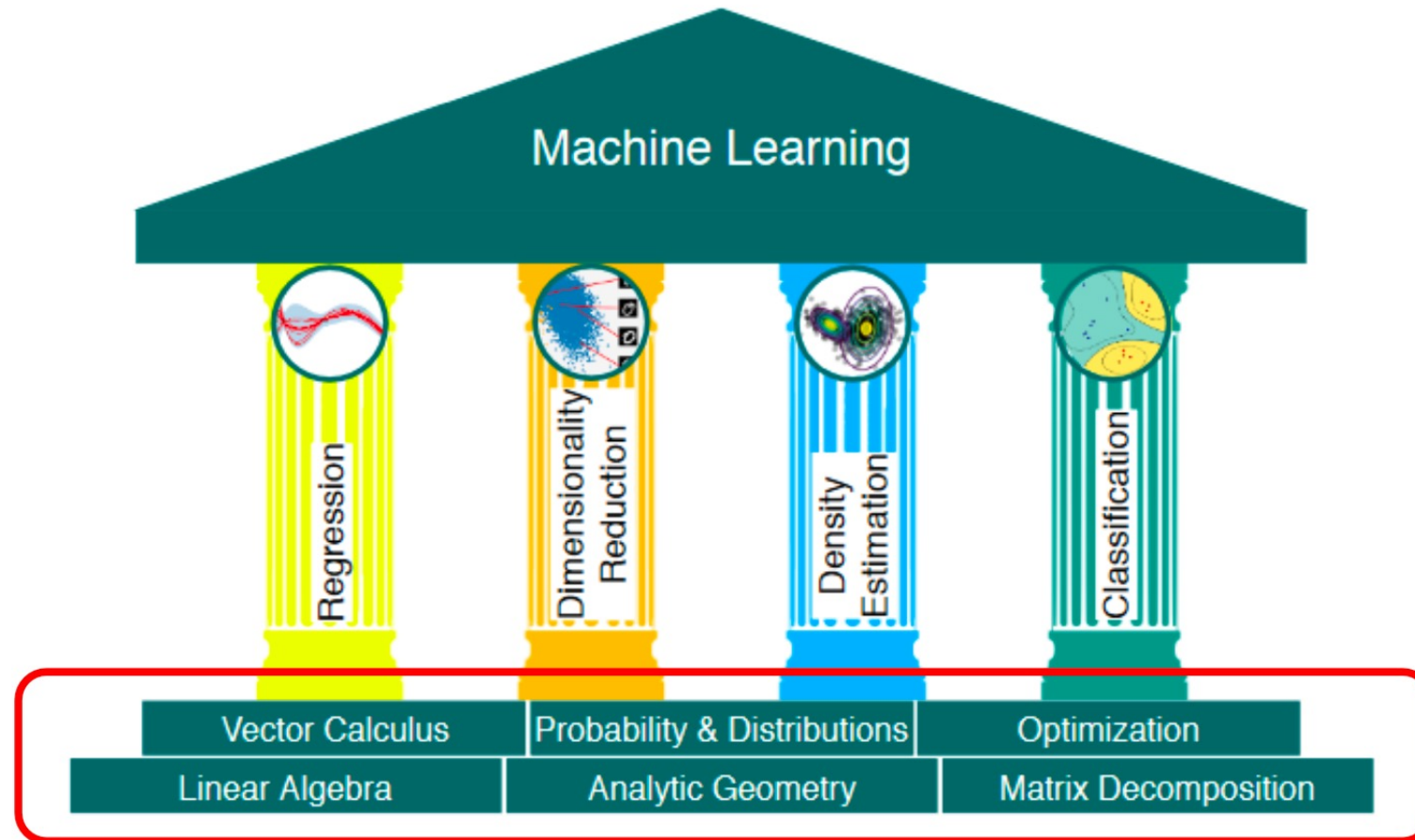


Image source: Mathematics for Machine Learning, p.14
(<https://mml-book.github.io/book/mml-book.pdf>)



In this course

Abstract geometric shapes consisting of several rounded, irregular polygons outlined in black, located in the bottom-left corner of the yellow background.

We will review:

- Linear Algebra
- Calculus

Prerequisites:

- Some Python
- Basic Math
- *Latex*

Logistics



- Pre-recorded lectures
- Online practical sessions
 - *Mondays & Fridays*
19:00 Moscow time
1.5 hours
- ± 5 graded assignments
- Final grade:
 - *60% exam (30% Linear Algebra, 30% Calculus)*
 - *40% graded assignments*

You should use Latex for assignments

<http://overleaf.com> is a great online editor

The screenshot displays the Overleaf online LaTeX editor interface. The browser address bar shows the URL `overleaf.com/project/61bca2b68a183f70399d550c`. The editor is titled "msai21-latex-tutorial-exercise". On the left, a file explorer shows "main.tex". Below it, a "File outline" panel lists sections: "Text formatting", "Lists", "Formulas", and "Bibliography". The main editor area shows the LaTeX source code for "main.tex", which includes document class, package loading, title, author, and content sections. The right panel shows the rendered PDF output, which includes the title "Introduction to LaTeX: Exercises", author "Your Name", date "September 25, 2023", and sections for "Text formatting", "Lists", "Formulas", and "Bibliography". The "Text formatting" section shows "Hello, world!". The "Lists" section shows a numbered list "My todo-list" with three items: "1. todo", "2. todo", and "3. todo". The "Formulas" section shows the dot product formula $v \cdot u \Leftrightarrow (u, v) = 0$ and the cosine formula $\cos \varphi = \frac{(u, v)}{\|u\| \cdot \|v\|}$.



Useful resources



 Course github: <https://github.com/girafe-ai/math-basics-for-ai>

Useful Resources

Linear Algebra

- (course) [Topics in Linear Algebra](#): lecture notes + quizzes.
- (Youtube playlist) [Linear Algebra for Engineers](#): a series of videos covering the most important concepts.
- (lecture notes) [Linear Algebra in 25 Lectures \(UC Davis\)](#)
- (book) [Introduction to Applied Linear Algebra](#)
- (book) [Deep Learning](#) - Part I

Calculus

- (Youtube playlist) [Essence of Calculus](#)
- (lecture notes) Introduction to Differential Calculus [[pdf](#)]
- (lecture notes) First Semester Calculus [[pdf](#)]

General

- (book) [Mathematics for Machine Learning](#)



- Where are you from? Where are you located now?

- Please fill in a short questionnaire about your background
<https://forms.gle/FTDFEot6D48CS67VA>

