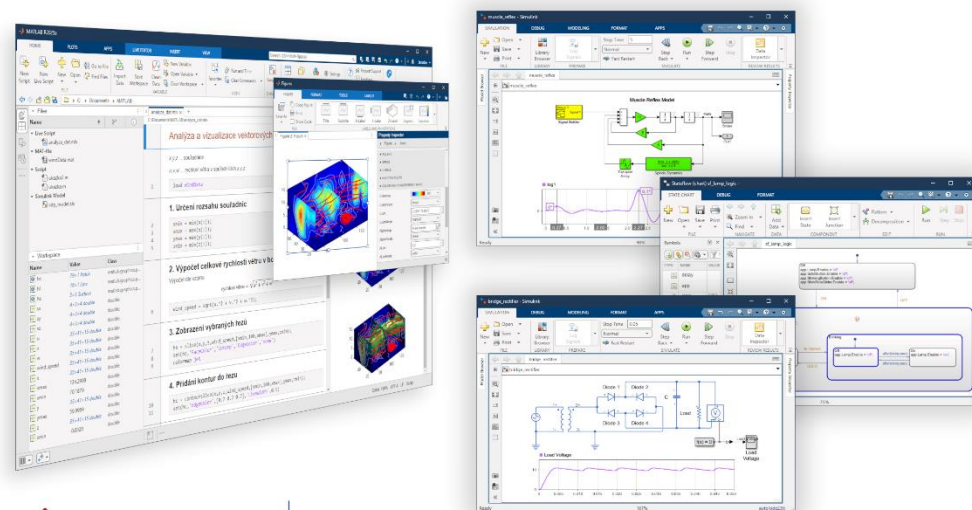


11.9.2025 Technical Computing Camp 2025

Nové nástroje, materiály a služby v oblasti vzdelávania



Martin Foltin

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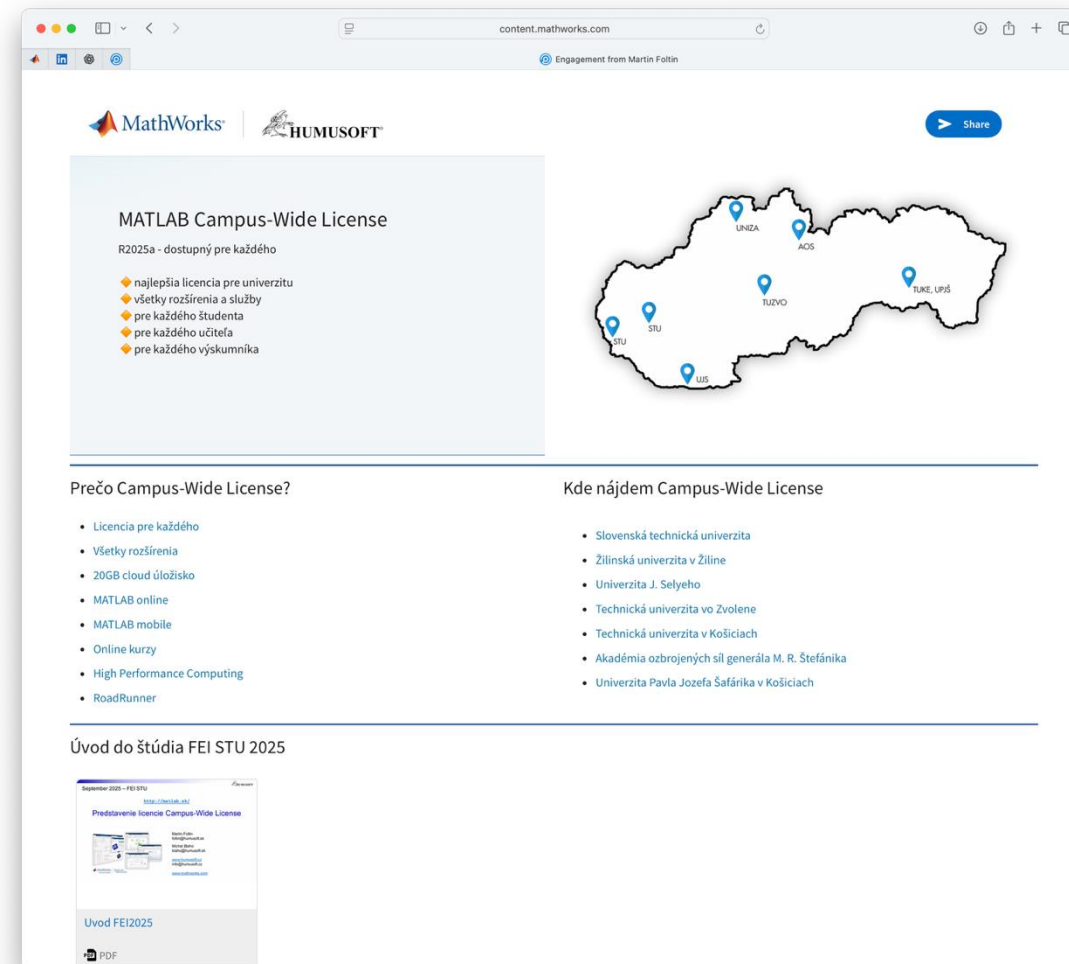
<https://www.humusoft.sk>

<https://www.linkedin.com/in/mfoltin/>

Campus Wide License CWL

- Všetko pre všetkých
- [MATLAB Online](#)
- [MATLAB Mobile](#)
- [MATLAB Drive](#)
- [MATLAB Copilot](#)
- [MATLAB Online Training Suite](#)

<http://matlab.sk>



Self-Paced Online Course

- Matematika je problém

344

18. VLASTNÉ HODNOTY A VLASTNÉ VEKTORY

Vlastnou (charakteristickou) hodnotou (vlastným číslom), resp. vlastným (charakteristickým) vektorom štvorcovej matice $\mathbf{A} \in K^{n \times n}$ nazývame vlastnú hodnotu, resp. vlastný vektor lineárneho operátora $K^n \rightarrow K^n$ daného predpisom $\mathbf{x} \mapsto \mathbf{A} \cdot \mathbf{x}$. Vlastná hodnota $\lambda \in K$ a k nej prislúchajúci vlastný vektor $\mathbf{0} \neq \mathbf{v} \in K^n$ matice $\mathbf{A}$ sú tak zviazané vzťahom $\mathbf{A} \cdot \mathbf{v} = \lambda \mathbf{v}$.

Z vety 18.1.2 vyplýva, že vlastné hodnoty podobných matíc sú vlastnými hodnotami toho istého lineárneho operátora, preto platí:

18.2.1. Tvrdenie. *Podobné matice majú rovnaké vlastné hodnoty.*

... 🤖 a čuduje sa niekto?

🤔 a je vlastne problém matematika?

Self-Paced Online Course

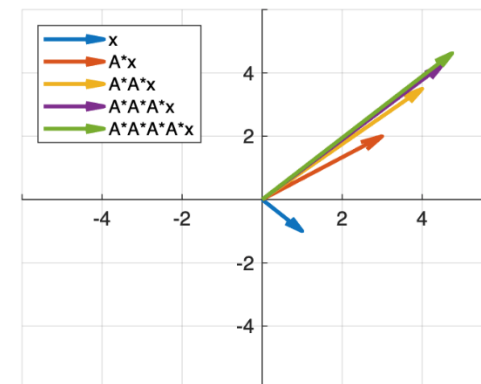
- Matematika je problém
- Kurzy so zameraním na matematiku
- [Mathematics and Optimization](#)
- Učte s príbehom
- #OTS_math
- #MatikaBezStresu

$$A = 2 \times 2$$

$$\begin{pmatrix} 2.0000 & -1.0000 \\ 1.5000 & -0.5000 \end{pmatrix}$$

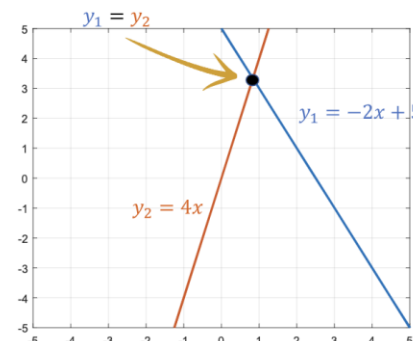
$$x = 2 \times 1$$

$$\begin{pmatrix} 1 \\ -1 \end{pmatrix}$$



Solutions to Linear Systems

The solution of a system of linear equations refers to the x/y pair that makes both equations equal. In other words, the x/y pair that corresponds to the intersection of two lines.





Solving Nonlinear Equations with MATLAB
3 hours | Languages
Use root finding methods to solve nonlinear equations.



Statistics Onramp
1 hour | Languages
Get started using statistical methods for analysis in MATLAB.



Optimization Onramp
1 hour | Languages
Learn the basics of solving optimization problems in MATLAB using the problem-based approach.



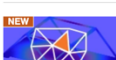
Introduction to Symbolic Math with MATLAB
2 hours | Languages
Get started quickly with an introduction to symbolic math.



Introduction to Linear Algebra with MATLAB
COMPLETED | 3 hours | Languages
Use matrix methods to solve systems of linear equations and perform eigenvalue decomposition.



Solving Ordinary Differential Equations with MATLAB
4 hours | Languages
Use MATLAB ODE solvers to numerically solve ordinary differential equations.



NEW Introduction to Finite Element Analysis with MATLAB
45% | 1 hour | Languages
Learn to solve real-world engineering problems with finite element analysis.

#OTS_math

Ako pedagóg môžem povedať, že kurzy orientované na matematiku, napríklad **Introduction to Linear Algebra**, predstavujú skvelé doplnenie prednášok a cvičení. Kurz umožňuje lepšie pochopiť a rozvinúť znalosti z dôležitej oblasti matematiky, ako napr. riešenie systémov lineárnych rovníc, vlastné čísla a vlastné vektory matice či jej singulárny rozklad.

Tento on-line kurz by som odporúčal všetkým študentom, ktorí sa chcú technicky vzdelávať, prehĺbiť si vedomosti z matematiky, ale v neposlednom rade aj pre oboznámenie sa a prácu s moderným programovým nástrojom budúceho inžiniera, akým nepochybne MATLAB je.



Doc. Mgr. Branislav Ftorek, PhD.
Prodekan pre pedagogickú činnosť
@FSTROJ UNIZA

Learning Path

- [Learning Path \(15\)](#)
- [Digital Credentials - Credly](#)



Explore Convolutional Neural Networks

1 hour | [Languages](#)

Gain a deeper understanding of how convolutional neural networks process images.



Tune Deep Learning Training Options

1 hour | [Languages](#)

Learn about the deep network training process to make informed decisions about your training algorithm options.



Regression with Deep Learning

0.5 hours | [Languages](#)

Learn how to tailor the deep learning workflow for regression tasks.



Object Detection with Deep Learning

1 hour | [Languages](#)

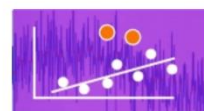
Use deep learning for multiclass object detection with YOLO, pretrained networks, and evaluation techniques.



Tables

2 hours | [Languages](#)

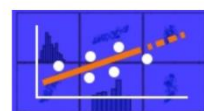
Import, manage, and manipulate tabular data.



Clean and Prepare Data for Analysis

1.5 hours | [Languages](#)

Perform common data cleaning techniques.



Common Data Analysis Techniques

1 hour | [Languages](#)

Analyze relationships between variables and model patterns in data.



Find and Extract Subsets of Data

1 hour | [Languages](#)

Use logical indexing to filter data and count elements.



Calculations on Grouped Data

1 hour | [Languages](#)

Perform calculations on groups of data.



Control System Modeling Essentials

1 hour | [Languages](#)

Create control system objects in MATLAB and Simulink and simulate their behaviors.



Linearization of Nonlinear Systems

0.5 hours | [Languages](#)

Linearize nonlinear systems at the appropriate operating points.



Control System Analysis Techniques

1 hour | [Languages](#)

Analyze control systems to explore their critical properties.



PID Control Techniques

0.5 hours | [Languages](#)

Design PID controllers for real-world systems.



Classical Controller Design Techniques

0.5 hours | [Languages](#)

Learn controller design using classical design methods.

MATLAB – nástroj pre moderné vzdelávanie

- Využívajú TOP univerzity sveta
- Využite možnosti CWL
- Zapojte študentov
- Tvorte



meranie vlhkosti pôdy

