Welcome to

Symbolic Math with MATLAB

The event will begin shortly, before we begin remember:

Mute your mics

(is already off by default)

If you don't have MATLAB, you can run it in the browser:
https://matlab.mathworks.com

$$\mathcal{L}(x^2)(s) = \frac{2}{s^3}$$

$$\mathcal{F}(e^{-x^2})(\omega) = \sqrt{\pi}\, e^{-\frac{\omega^2}{4}}$$

$$\cos(x) \approx 1 - \frac{x^2}{2} + \frac{x^4}{24} - \frac{x^6}{720}$$

Symbolic Math with MATLAB

Simon Thor
KTH MATLAB Student Ambassador

$$\frac{dy}{dx} = 2\,x + 2\,y\,(x)$$

$$y(0) = 2$$

$$4x^2 - x + 1 = 0$$

$$\sin x \approx x$$

$$y = \frac{5\,e^{2\,x}}{2} - x - \frac{1}{2}$$

$$x = \frac{1}{8} \pm \frac{\sqrt{15}\,i}{8}$$

Agenda

- Poll

- What is the symbolic math toolbox?

- Use cases

- Demo

- Quiz

- More resources

- Ask questions whenever you want!

Presentation and other resources available here:

https://github.com/simonthor/kth-matlab-ambassador/tree/master/Seminars/Symbolic%20Math

What is the Symbolic Math Toolbox?

- Extension to MATLAB

- Computer Algebra System (CAS)

- Solve equations, differential equations, simplify expressions etc.

- Integrates well with live scripts
  - Beautifully rendered
  - Export to LaTeX and MathML
  - Live editor tasks
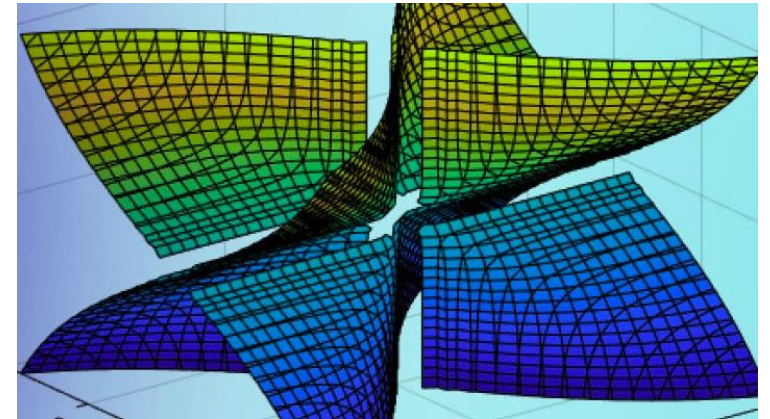
Use Cases

- Complex mathematical expressions that cannot be solved by hand (in a realistic time frame)

- Very useful for checking answers in homework!

Demo

- MATLAB Online:
https://drive.matlab.com/sharing/5e576103-ed7d-4be3-b7d7-93cbc7987ace

- Github:

- https://github.com/simonthor/kth-matlab-ambassador/tree/master/Seminars/Symbolic%20Math
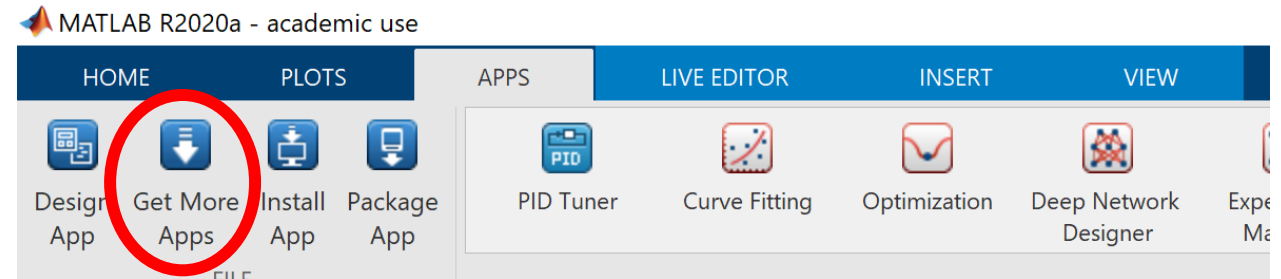
Quiz

- Take the Quiz on https://kahoot.it

- Winners will get Amazon gift cards!
  1. 250 SEK
  2. 150 SEK
  3. 100 SEK

Resources

- Try it out in MATLAB!

- [Symbolic math toolbox home page](#)

- [Additional links in Github repository](#)

- [Documentation](#)

- [Live editor tasks](#)

- Have problems? Ask in the Facebook group :)

Social Media

- Join the MATLAB@KTH Facebook group

- Stay up to date with all events being hosted

- Posts about MATLAB & Simulink tips, resources etc.

https://facebook.com/groups/MATLAB.KTH

- Instagram: @matlab_kth
  – Post (outdated) memes
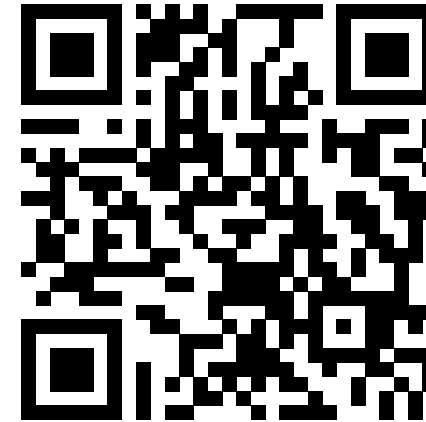
https://instagram.com/matlab_kth

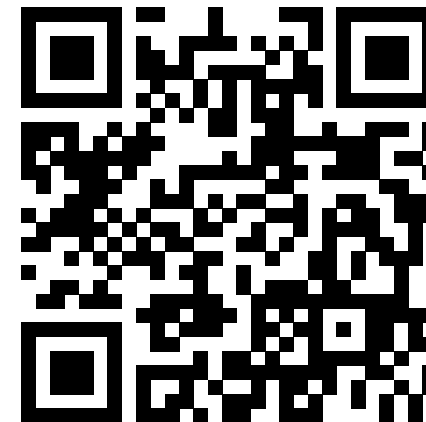# Thank you for attending!

- MATLAB merch:

- Handed out at the KTH library, to the left of the entrance
  - Look for a red backpack

- **28th April ~12:30 – 17:00** (Wednesday next week)