Rendering: Introduction

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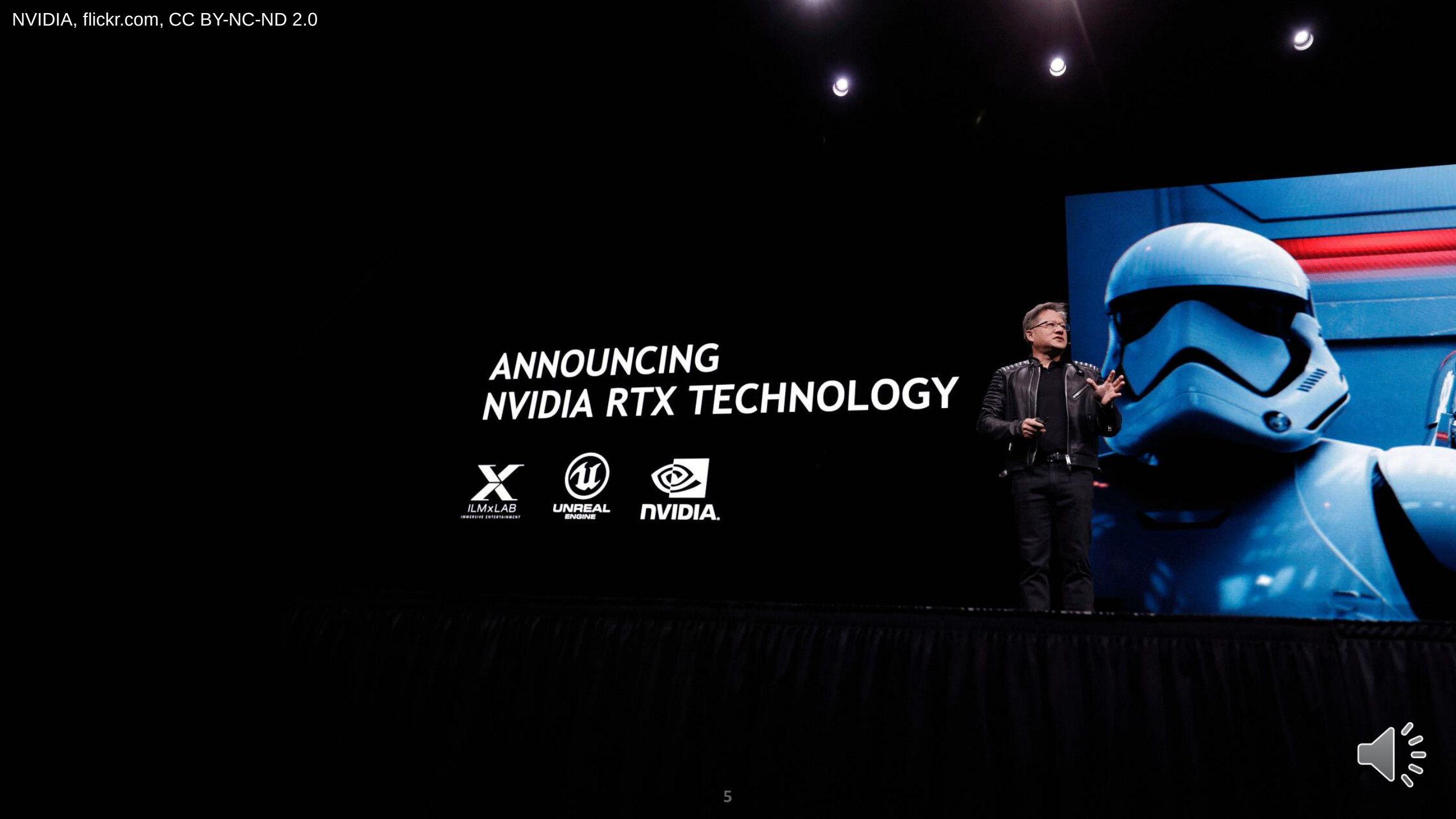
What this lecture is about

- Why should you invest time in this course?

Source: MR_Stein, flickr.com, CC BY-NC 2.0. Edges blurred.

Source: Gilles Tran, Wikipedia, “Ray Tracing”

Spring, © Blender Foundation | cloud.blender.org/spring

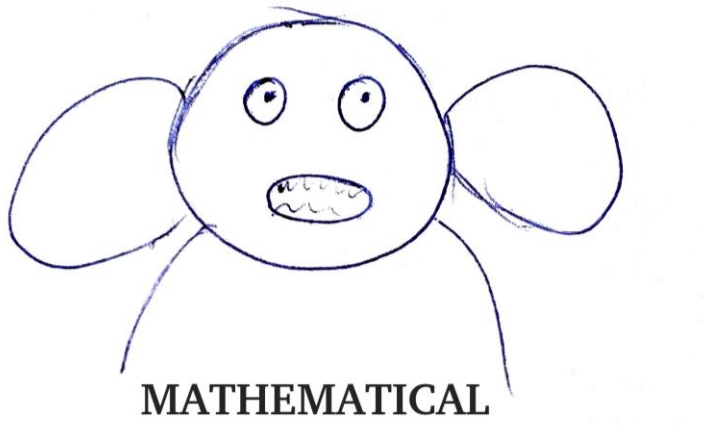


Goals of this lecture

- Understanding the nature of light and color
- Modeling light transport for image synthesis
- Generation of realistic (or artistic), high-quality images
- Making the rendering process as effective as possible

Prerequisites

- General interest in computer graphics
- Basic programming skills (C++)
- Fundamentals of higher mathematics:



  - Interpreting moderately complex formulas
  - Linear algebra (vectors, matrices, spaces)
  - Probability & statistics essentials
  - Calculus (integrals, derivatives)

If you need a recap or introduction to mathematical foundations:

- Early chapters of the course book
- For a more didactic approach, consider *3blue1brown* series on linear algebra and calculus

Course Structure

- Lecture (held by Adam Celarek & Bernhard Kerbl)
  - Wednesday at 13:00, s.t.
  - Includes announcements and updates regarding practical part
- Lab exercise
  - 3 programming exercises, based on Nori renderer
  - Framework download and submissions via Git
  - Must be solved individually (no group work!)
- Final exam

What to do for a passing grade

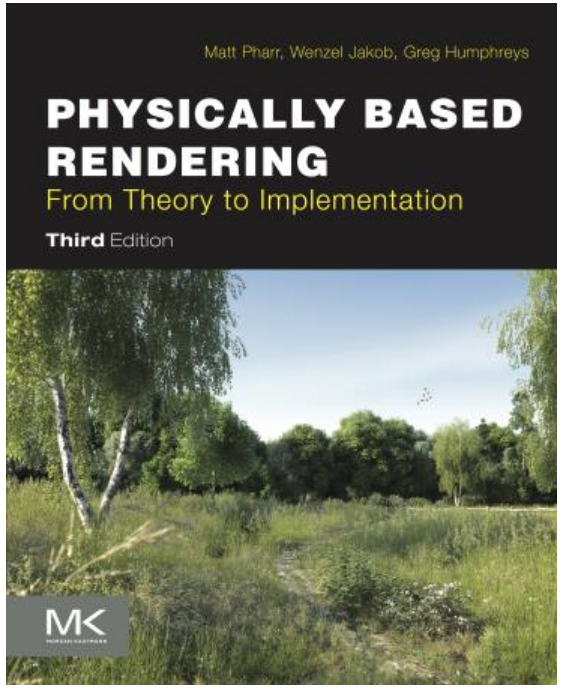
- Do the lab exercises (100 pts)
  - You can obtain extra points for putting in additional effort
  - Excellent solutions may earn enough points (160+) to skip exam!

- Study for the final exam (80 pts)
  - Questions will be based on lecture topics
  - Held towards the end of the course

- Grading: $\geq 100 = 4, \geq 120 = 3, \geq 140 = 2, \geq 160 = 1$

Course Materials

- Lecture Book (highly recommended)
  - Physically Based Rendering, 3rd edition
  - Available for free on the book's homepage



- Course page
  - cg.tuwien.ac.at/courses/Rendering/VU.SS2020.html
  - TUWEL and TISS course pages

- Lecture Slides

- Assignment Sheets (will be released during the semester)

Communication

- Lecture slides: course homepage
- Official announcements: via TISS & group mail
- Discussion topics for lecture contents: via TUWEL
- Mistakes, issues, special actions: via direct mail
- Submissions and Testing: submission.cg.tuwien.ac.at

Communication

Good ideas:

- Talking about lecture contents with us or your colleagues ✓
- Asking questions on TUWEL ✓✓
- Writing us mails regarding mistakes in the material ✓✓✓
- Sending us your code (✓)

Bad ideas:

- Sending mails before checking the course materials ✗
- Sharing code with your colleagues ✗ ✗
- Posting code on TUWEL ✗ ✗ ✗

Contact

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Questions?