Mathematics for Computer Graphics 2009-AAU
Lecture 7 September 25th

7th Lecture: Friday September 25th, 8:15-12:00 at room A4-108.

- 08:15-08:45 Lecture: Repetition from last recture. Matrix inverse, determinant.
- 08:45-10:40 Work in groups. Exercises: 64, 67, 65, 71, 68, 69, 70. I recommend you solve them in this order.

  You may also try to solve the following two exercises from last year's exam.

  Opgave 4 (exam Januar 2008): Betragt matricen

$$\begin{bmatrix} 0 & b & 1 \\ a & 1 & 2 \\ 0 & 0 & c \end{bmatrix}$$

  1. Bestem $det(B)$.
  2. For hvilke værdier af a, b, c er determinanten forskellig fra 0?
  3. For hvilke værdier af a, b, c er rækkerne i B lineært afhængige?

  Opgave 7 (exam Januar 2008): Lad en lineær transformation $\tau : \mathbb{R}^3 \to \mathbb{R}^3$ være givet ved $\tau([1,0,0]^T) = [1,0,1]^t$, $\tau([0,1,0]^T) = [1,0,1]^t$, $\tau([0,0,1]^T) = [0,0,0]^t$.

  1. Bestem en matrix C så der for alle $[X,Y,Z]^T$ gælder $\tau([X,Y,Z]^T) = C[X,Y,Z]^T$.
  2. Hvad bliver $[1,1,1]^T$ transformeret over i?
  3. Hvad bliver $[1,1,0]^T$ transformeret over i?

  If you solve all these exercises you may try to solve the ones you did not solve in the previous lectures.

- 10:40-12:00 Lecture: Affine transformations, translation, rotation (basic), trigonometry review (pages 133-145 + apendix A).

Best,

Diego Ruano