Recent Advances in Real-Time Collision and Proximity Computations for Games and Simulations

Sung-Eui Yoon
KAIST

URL: http://jupiter.kaist.ac.kr/~sungeui/

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Collision and Proximity Computations

- **Collision detection, minimum separation distance, penetration depth, etc.**

- **Widely used in real-time applications**
  - **Games**
  - **Physically-based simulations**
  - **Robotics**

from AION

from "Need for speed"

from HUBO Lab. In KAIST

Why we need this course?

- Significant advances have been made recently
- No recent surveys and courses on the topic

- Our goals
  - Give high-level ideas on recently developed techniques, with an introduction to the field
  - Discuss open and commercial libraries

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Structure of the Course

- **Introduction to the field**
  - **Dinesh Manocha, UNC-Chapel Hill**
  - **2:10pm ~ 2:30pm**
- **Techniques for rigid and articulated models**
  - **Young J. Kim, Ewha W. Univ.**
  - **2:30pm ~ 3:00pm**
- **Techniques for deformable models**
  - **Sung-eui Yoon, KAIST**
  - **3:00pm ~ 3:30pm**
- **Break: 3:30pm ~ 3:45pm**

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Structure of the Course

- GPU-based hierarchy algorithms
  - Dinesh Manocha, UNC-Chapel hill
  - 3:45pm ~ 4:15pm
- Bullet and proximity queries
  - Erwin Coumans, Sony Computer Entertainment
  - 4:15pm ~ 4:45pm
- PhysX and proximity queries
  - Richard Tonge, NVIDIA
  - 4:45pm ~ 5:15pm

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Announcements

- **Dinesh Manocha, UNC-Chapel Hill**
  - **MS, Ph.D. students, & postdoc positions (sometimes)**

Lecture slides:
http://sglab.kaist.ac.kr/~sungeui/Collision_tutorial/

- **Sung-eui Yoon, KAIST**
  - **Ph.D. & post-doc. positions available**
  - **Contact: sungeui@cs.kaist.ac.kr**

- **Young J. Kim, Ewha W. Univ**
  - **Ph.D., postdoc, research staff positions**
  - **Contact: kimy@ewha.ac.kr**

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