

# 15-869 COMPUTER GRAPHICS SEMINAR

TR 3:00pm-4:20pm EDSH (Smith Hall) 236

## INSTRUCTORS

Yaser Sheikh (coordinator) Stelian Coros Keenan Crane Kayvon Fatahalian Jessica Hodgins Burak Kara Srinivas Narasimhan Nancy Pollard

**BREAKING NEWS:** Provide feedback to the debate teams!

## SUMMARY

This seminar course introduces the frontiers of computer graphics research. The goal is to encourage the ability to think critically and constructively about active research topics.

## DESCRIPTION

The course lectures are divided into three categories:

### 1. "How to..." Talks

"How to give a talk" by Kayvon  
 "How to read a paper" by Yaser  
 "How to write a paper" by Jessica  
 "How to pitch a project" by Nancy

### 2. Paper Debates

Each paper will be assigned to two teams of two, debating the statement:

This paper makes a lasting impact on computer graphics

The **affirmative** team will build the case for the contributions of the paper and justify its limitations. The **improvement** team will constructively challenge the contributions and highlight the failures and limitations of the paper.

|               |        |             |        |        |
|---------------|--------|-------------|--------|--------|
| 15 min.       | 5 min. | 10 min.     | 5 min. | 5 min. |
| Contributions | Qs     | Limitations | Qs     | Qs     |
| 40 min.       |        |             |        |        |

The debate will be 40 minute long:

15 minutes opening statement of contributions (**affirmative** team)  
 5 minutes of opposition questioning (**improvement** team)  
 10 minutes of limitations statement (**improvement** team)  
 5 minutes of opposition questioning (**affirmative** team)  
 5+ minutes of **audience** questions

During the debate, the participants will be expected to cover the SIGGRAPH review questions, with useful reviewer instructions here.

### 3. Paper Pitches

Each student will submit a written pitch of a project in the SIGGRAPH format. This pitch will be an idea that you are excited about pursuing for SIGGRAPH; preliminary results are encouraged but not required. Each student will present a pitch to the class followed by discussion of the idea in the class. All students will enter a SIGGRAPH style review of the paper pitch as feedback for the student.

## SCHEDULE

|           | Date  | Lecture        | Instructor(s) | Topic 1  | Topic 2               | Notes                |
|-----------|-------|----------------|---------------|--|-----------------------|----------------------|
| Lecture 1 | Sep-8 | Faculty Debate | Yaser         | Dyna: A Model...<br>Yaser (C), Kayvon (Q)<br>Stelian (Q), Keenan (L) | Introduction<br>Yaser | Contributions (Yase) |

|                      |        |                        |   |  |  |   |
|----------------------|--------|------------------------|---|--|--|---|
| Lecture 2            | Sep-10 | "How to" Talks         | Kayvon, Yaser                                       | How to give a talk (Kayvon)  | How to read a paper (Yaser)  | Contributions Temp<br>Limitations Templat |
| <b>Debates</b>       |        |                        |   |  |  |   |
| Lecture 3            | Sep-15 | Performance Capture    | Yaser   |  |  | [ pdf ]                                   |
| Lecture 4            | Sep-17 | Paper Debates          | Yaser   | High Quality Passive...<br>Shengze (C), Nick (Q)<br>Alex (L), Genesis (Q)    | Facial Performance ...<br>Ruta (C), Zachary (Q)<br>Aayush (L), Maria (Q)           | Advisor: Sehoon H<br>Advisor: Binh Le     |
| Lecture 5            | Sep-22 | What is a System?      | Kayvon  |  |  |   |
| Lecture 6            | Sep-24 | Paper Debates          | Kayvon  | Decoupling algorithms...<br>Alex (C), Aayush (Q)<br>Nico (L), Ravi (Q)       | Simit: A Language...<br>Ravi (C), Shengze (Q)<br>Evan (L), Nico (Q)                |   |
| Lecture 7            | Sep-29 | Animating Hands        | Nancy   |  |  | [ pdf ]                                   |
| Lecture 8            | Oct-1  | Paper Debates          | Nancy   | Physically Based ...<br>Se-Joon (C), Evan (Q)<br>Erva (L), Chris (Q)         | Biomech. Simulation ...<br>Chris (C), Maria (Q)<br>Zachary (L), Se-Joon (Q)        |   |
| Lecture 9            | Oct-6  | 3D Geometry Proc.      | Keenan  |  |  | [ pdf ]                                   |
| Lecture 10           | Oct-8  | Paper Debates          | Keenan  | Surface Simplification...<br>Zachary (C), Ravi (Q)<br>Chris (L), Shengze (Q) | Poisson Surface...<br>Nick (C), Alex (Q)<br>Genesis (L), Zachary (Q)               |   |
| Lecture 11           | Oct-13 | Light Transport        | Srinivas  |  |  |   |
| Lecture 12           | Oct-15 | Paper Debates          | Srinivas  | Fast Separation...<br>Nico (C), James (Q)<br>Ravi (L), Supreeth (Q)          | A Dual Theory of...<br>Evan (C), Chris (Q)<br>Shengze (L), Aayush (Q)              |   |
| Lecture 13           | Oct-20 | 3D Shape Modeling      | Burak   |  |  | [ pdf ]                                   |
| Lecture 14           | Oct-22 | Paper Debates          | Burak   | ...Shape Synthesis<br>Aayush (C), Se-Joon (Q)<br>James (L), Nick (Q)         | ...Shape Galleries<br>Genesis (C), Erva (Q)<br>Maria (L), Nurcan (Q)               |   |
| Lecture 15           | Oct-27 | Simulating Humans      | Jessica   |  |  |   |
| Lecture 16           | Oct-29 | Paper Debates          | Jessica   | ...Physics-based locomotion<br>Maria (C), Nico (Q)<br>Nick (L), Alex (Q)     | ...Biologically-based Actuators<br>Nurcan (C), Sehoon (Q)<br>Se-Joon (L), Evan (Q) |   |
| Lecture 17           | Nov-3  | 3D Printing            | Stelian   |  |  | [ pdf ]                                   |
| Lecture 18           | Nov-5  | Paper Debates          | Stelian   | Elastic Structure...<br>James (C), Nurcan (Q)<br>Ruta (L), Erva (Q)          | ...Offset Structures<br>Erva (C), Genesis (Q)<br>Nurcan (L), James (Q)             | Project Advisors as                       |
| Lecture 19           | Nov-10 | "How To" Talks         | Jessica, Nancy                                      | How to pitch a project   | How to write a paper   | Hodgins on Gramm<br>Raibert on Good W     |
| Lecture 20           | Nov-12 | No Class               |   |  |  |   |
| <b>Paper Pitches</b> |        |                        |   |  |  |   |
| Lecture 21           | Nov-17 | No Class               |   |  |  |   |
| Lecture 22           | Nov-19 | No Class               |   |  |  |   |
| Lecture 23           | Nov-24 | No Class               |   |  |  |   |
| Lecture 24           | Nov-26 | Thanksgiving           |   |  |  |   |
| Lecture 25           | Dec-1  | Senior Project Pitches | Knitting: Vidya<br>Skinning: Binh<br>Control: Libin |  |  | Papers due (for eve                       |
| Lecture 26           | Dec-3  | No Class               |   |  |  |   |
| Lecture 27           | Dec-8  | Senior Project Pitches | Quilt: Chenxi<br>Skeleton Deformation: Binh         |  |  |   |

Humanoid: [Sehoon](#)

Lecture 28 Dec-10 No Class  
Symposium Dec-11 Project Pitches

Schedule TBA