

## CS371 Midterm Pre-Proposal Format

With a running example in gray (no student names needed)

### Title & representative image

- Simulating participating media for the short film *A Foggy Day*



### Elevator description & deliverables

Implement a simplified version of a Nishita et al.'s SIGGRAPH'87 atmospheric scattering paper and apply it to a 30-second short film of panning shots through mostly-static scenes.

### Outline your 5-10 minute *presentation* in five slide mockups or bullet points

- Teasers & photo reference
- Physics of light transport in fog
- Nishita's single-scattering fog rendering algorithm
- Results on simple scenes
- Our film

### Major tasks (number of ~3 hour days per task) & team size

- Cinematographer-Director (5d): storyboard, choose soundtrack, produce early animatics, maintain updated schedule, create presentation
- Editor (4d): titles, credits, splice shots together, add audio, deal with compression codecs, integrate stills, write multi-computer video output infrastructure
- Modeling programmers (10d): Find models, write custom converters, correct problems programmatically, create simple test scenes, tune materials and fog constants, rig scenes
- FX programmers (7d): Implement scattering, optimize renderer performance, implement proper path tracing, implement bloom and depth of field

26 days of work / 7 days = **4 people on team**

### What will the team members learn?

- The mathematics of participating media
- Stochastic sampling for implementing path tracing
- Cinematography techniques (we'll base this on Orson Welles' establishing shots from *The Third Man* and the picture book *Hide and Seek Fog*)
- Task-based procedural model repair

I will conditionally approve all ideas received before Sept. 30 that I believe can be implemented within the seven school days of the midterm period and address the goals of the course. Anyone in the class can then form an appropriately sized group, make a more detailed proposal, and take on that project. It is ok if multiple groups want to do the same project in parallel.