

# ACTOR and UC San Diego

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UC San Diego  
Qualcomm Institute

McGill University, Montreal  
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# Participants

- Roger Reynolds, composition
- Rand Steiger, composition
- Miller Puckette, computer music
- Shahrokh Yadegari, computer music

# Participating Units

- Department of Music
- La Jolla Symphony
- Sonic Arts Research and Development
- Initiative for Digital Exploration of Arts and Sciences (IDEAS)
- Qualcomm Institute

# History and Culture

- Center for Music Experiment (1972-1992)
- Center for Research in Computing and the Arts (1992-2012)
- Computer Music Ph.D. at Music Dept.(1999)
- California Institute for Telecommunication and Information Technology (Calit2)  
Qualcomm Institute (2007)

# Facilities

- Mandville Auditorium
- Conrad Prebys Concert Hall
- Experimental Theatre Black Box, (constellation)
- Calit2 Auditorium, Calit2
- Multipurpose Blackbox Theatre, Calit2
- Spatialization Lab, Calit2/Sonic Arts
- Immersive Visualization Lab, Calit2



Mandville Auditorium



Conrad Prebys Concert Hall



Experimental Theatre

(Equipped with Meyer's Constellation)



Calit2's Auditorium



Multipurpose Blackbox Theatre, Calit2



## Immersive Visualization Lab



## 30.2 Spatialization Lab

# Spatialization technology

## 30.2 Spatialization Lab

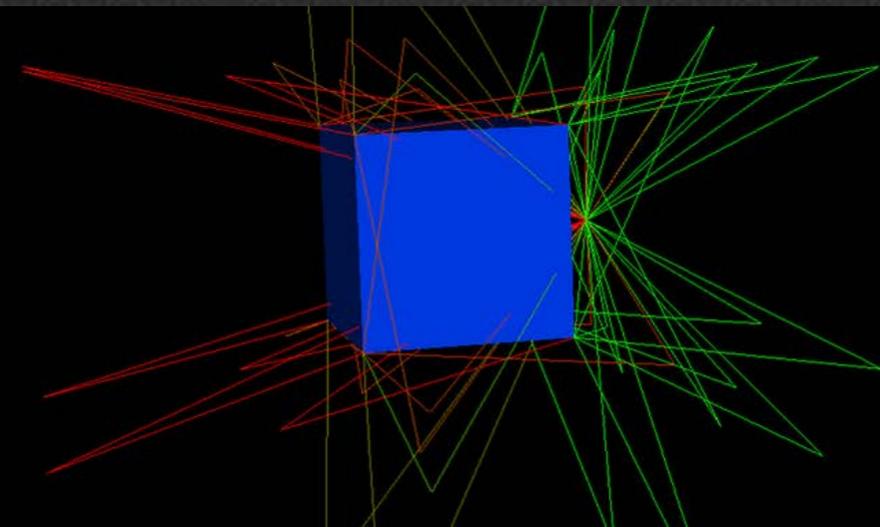


## Beam-Forming Technology



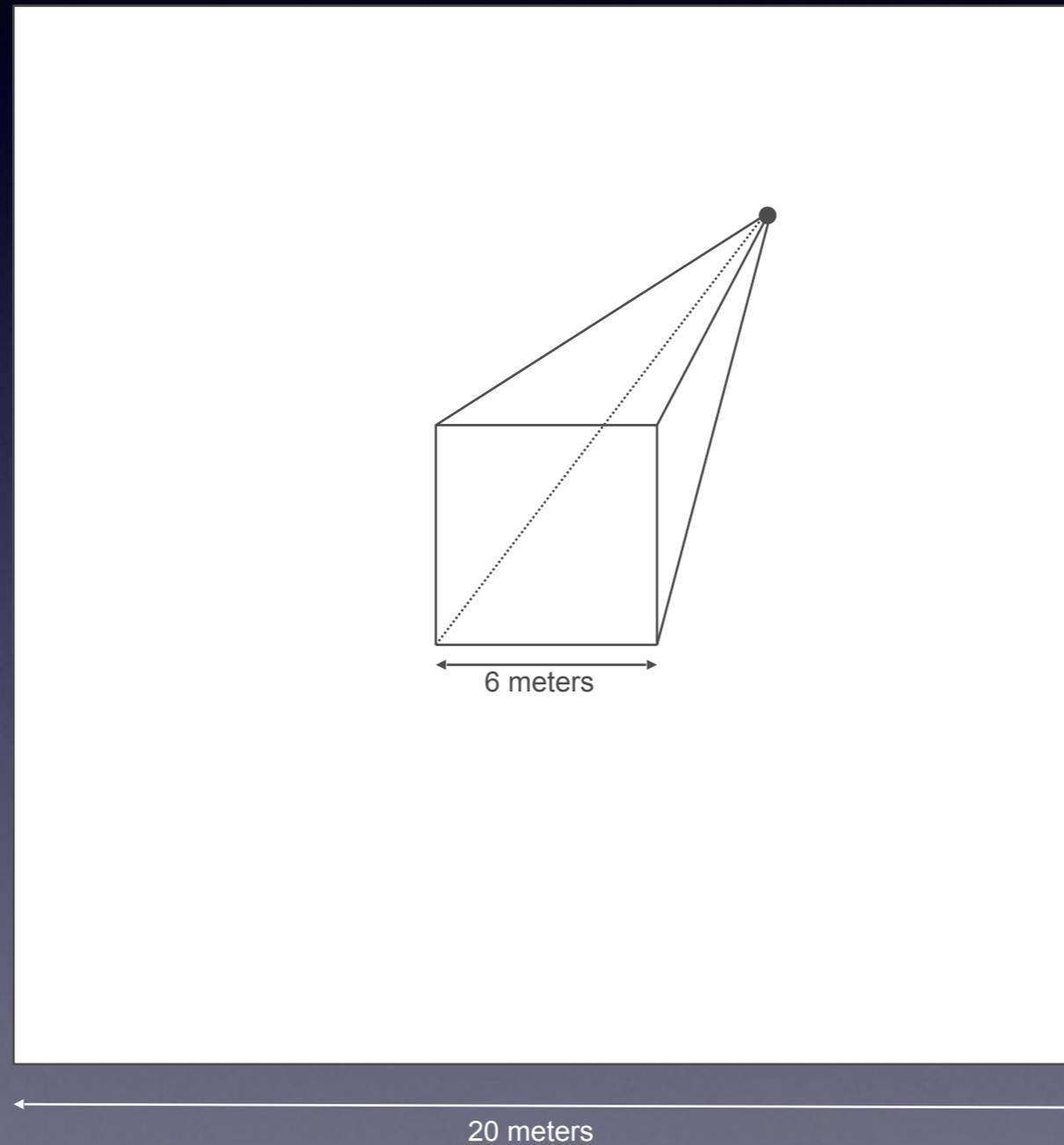
## 3D Spatialization (Space3D)

Realtime Synthesis Over Speaker and Binaural rendering

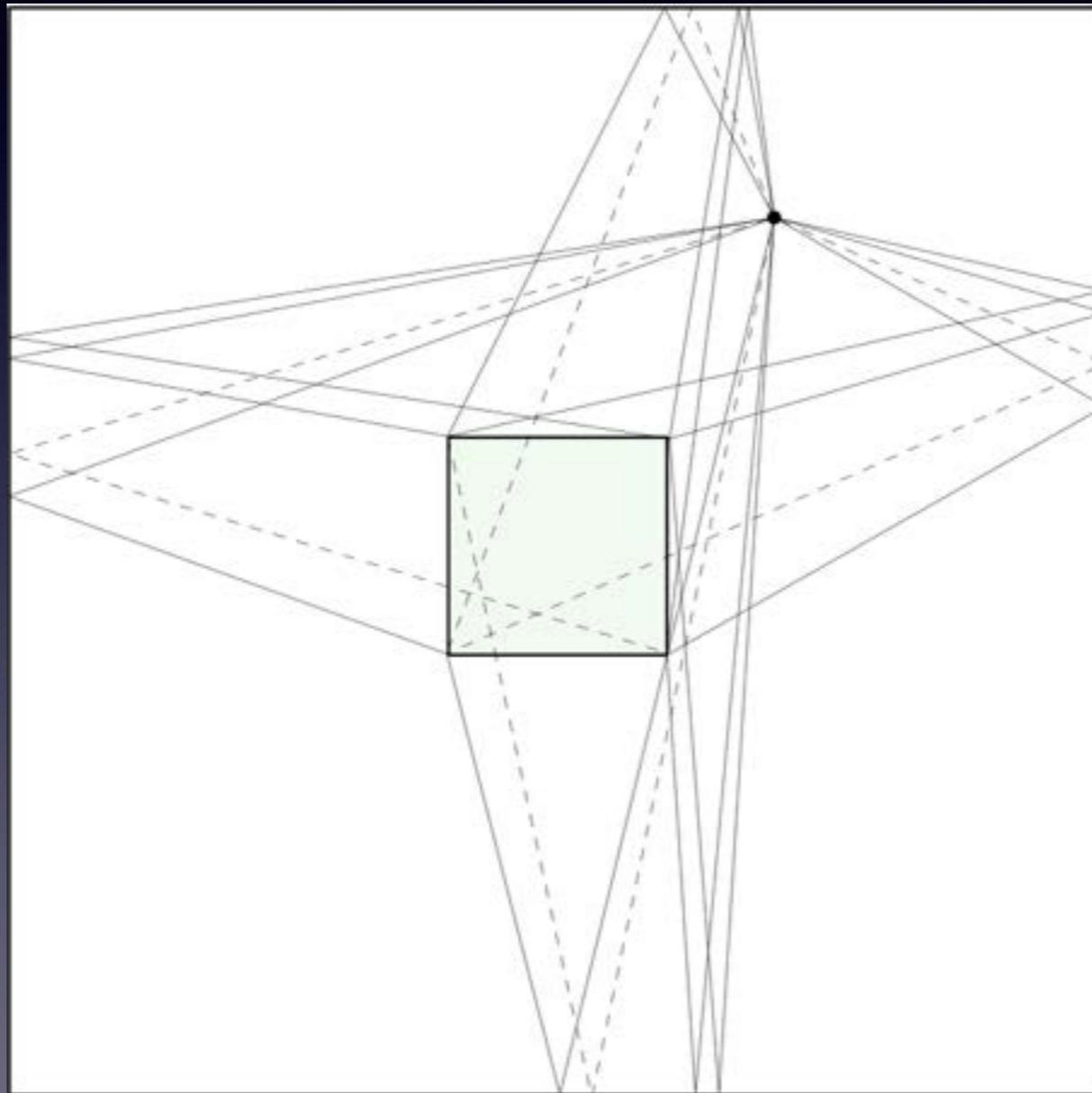


# Inner and Outer Room

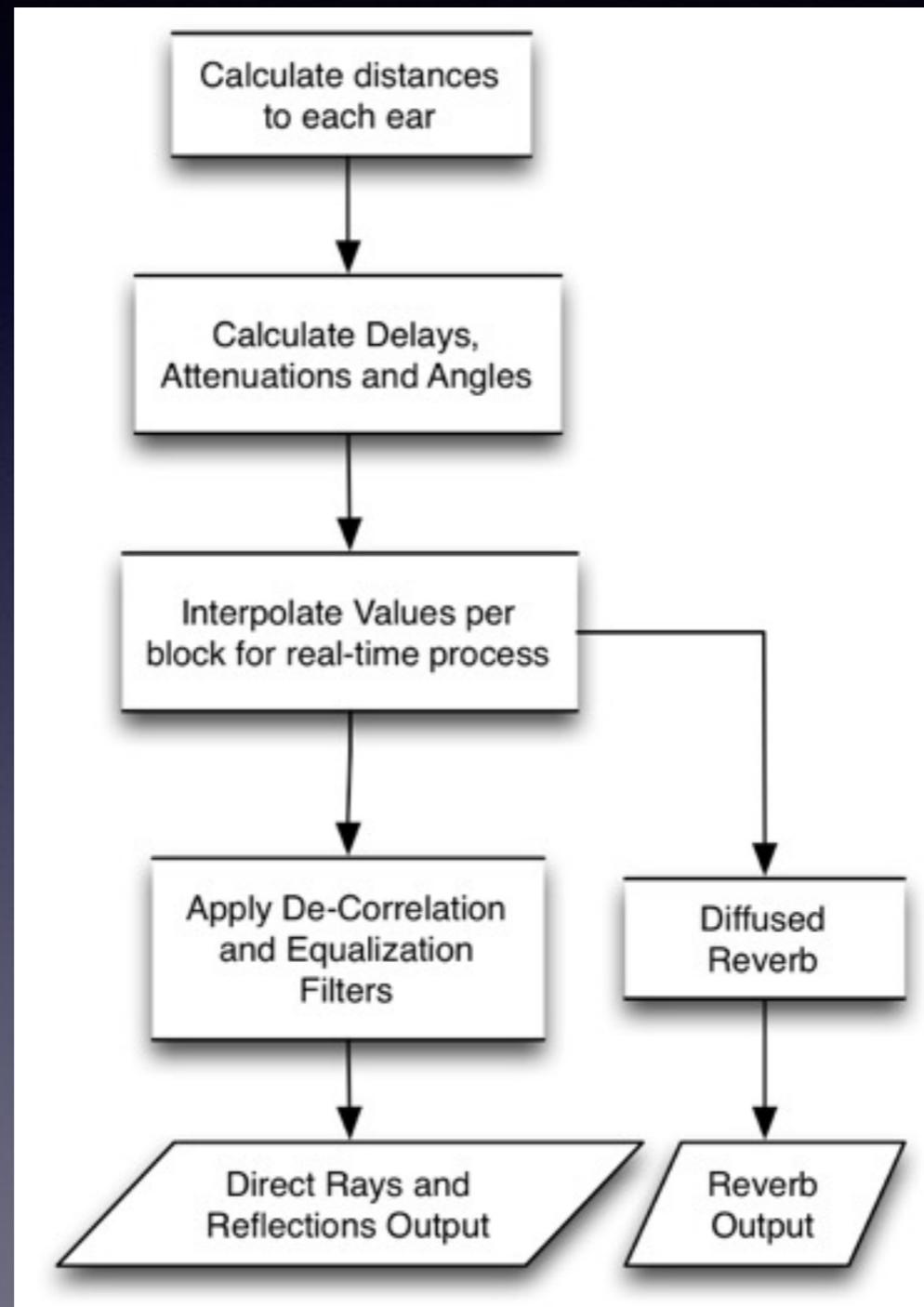
direct ray simulation



# First order reflection simulation



# Processing Flow



# Relevant Research Areas

- Orchestration Analysis and its interaction with technology
- Orchestration for chamber music (more intimate settings)
- Formalization of role of DSP in orchestration
- Effect of Spatialization physically and synthetically on orchestration (over speakers and binaural)
- Effect of Spatialization technique on Timbre
- Definition of musical objects
- Layers of Perception of musical objects
- Theory of orchestration
- Form a research ensemble
- Build a database of orchestration resources
- Capturing of sounds (including close mic'ing of instruments) as resource

Thank you

Shahrokh Yadegari

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