Jürgen Schulze, Shahrokh Yadegari

VIRTUAL REALITY LABORATORY

Motivation

- Virtual reality (VR) is predicted to be a major new technology for the next few years.
- Students need to be prepared for job market in VR.
- Teaching VR techniques in CSE 165 has been difficult due to lack of VR displays.

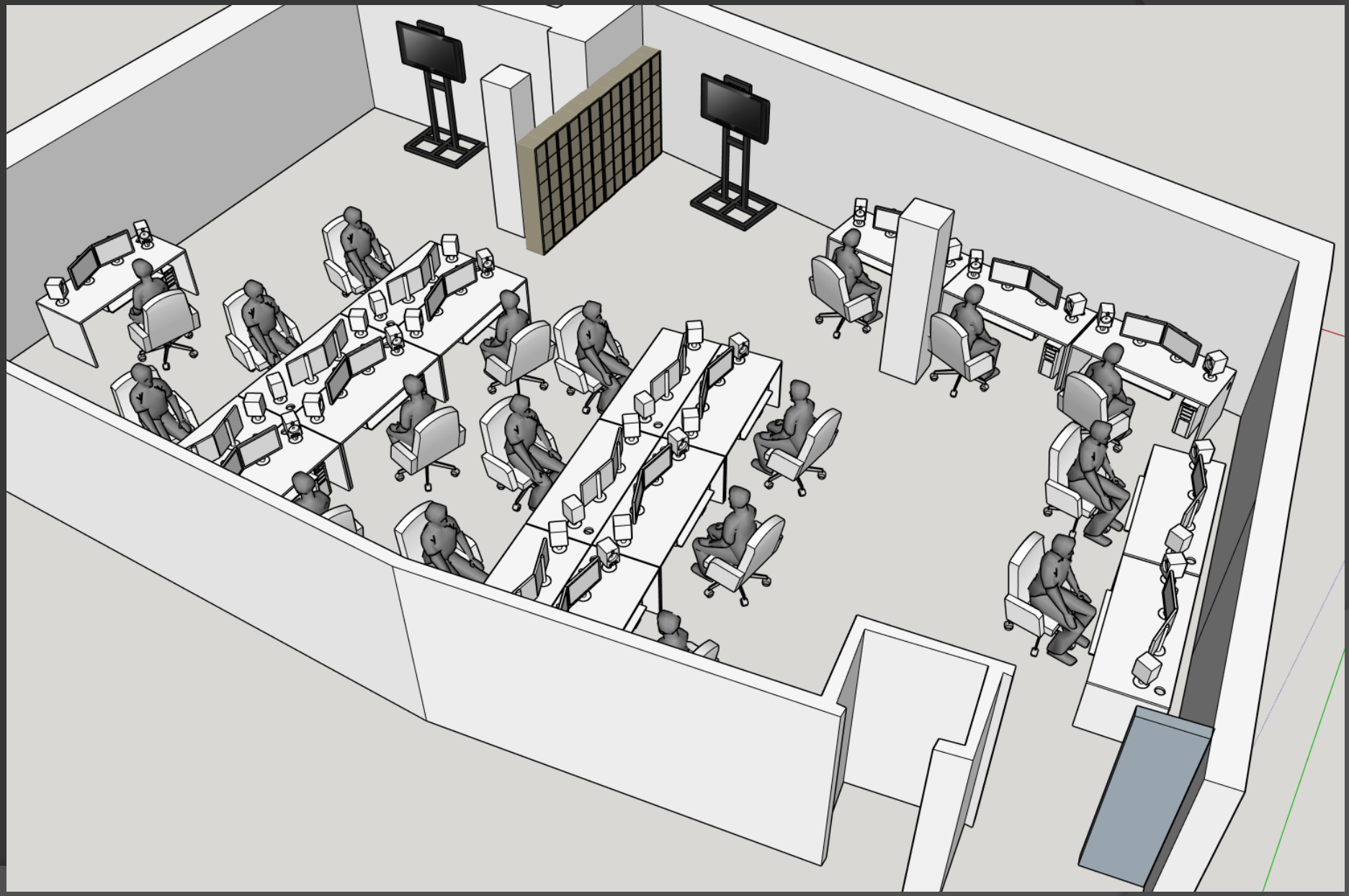
Virtual reality (VR): A billion dollar niche

Executive summary

Deloitte Global predicts that virtual reality (VR) will have its **first billion dollar year in 2016**, with about $700 million in hardware sales, and the remainder from content. VR is likely to have multiple applications, both consumer and enterprise, in the longer term, but in 2016 we expect the vast majority of commercial activity to focus on video games. We estimate **sales of about 2.5 million VR headsets and 10 million game copies sold**.

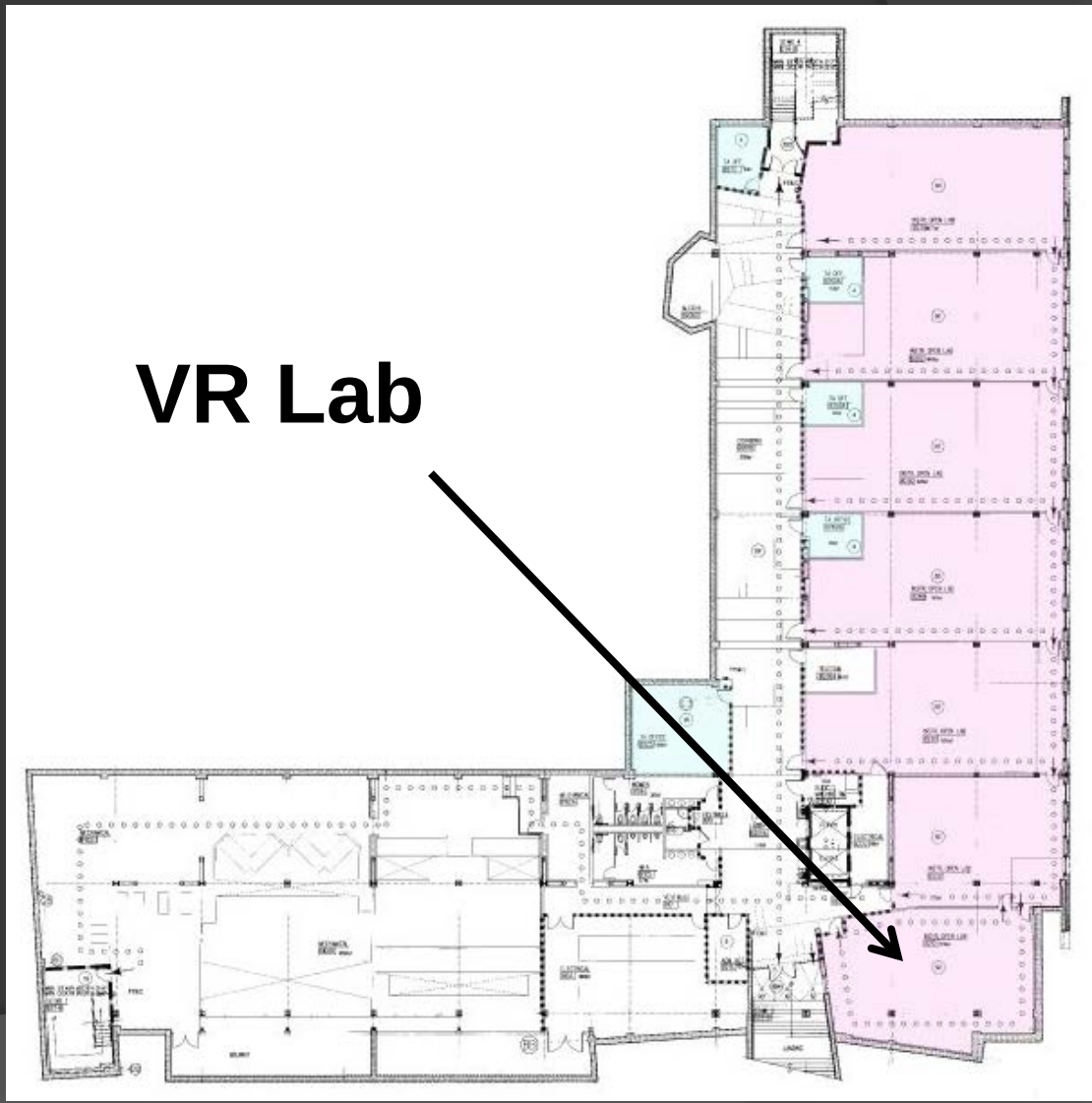
Objectives

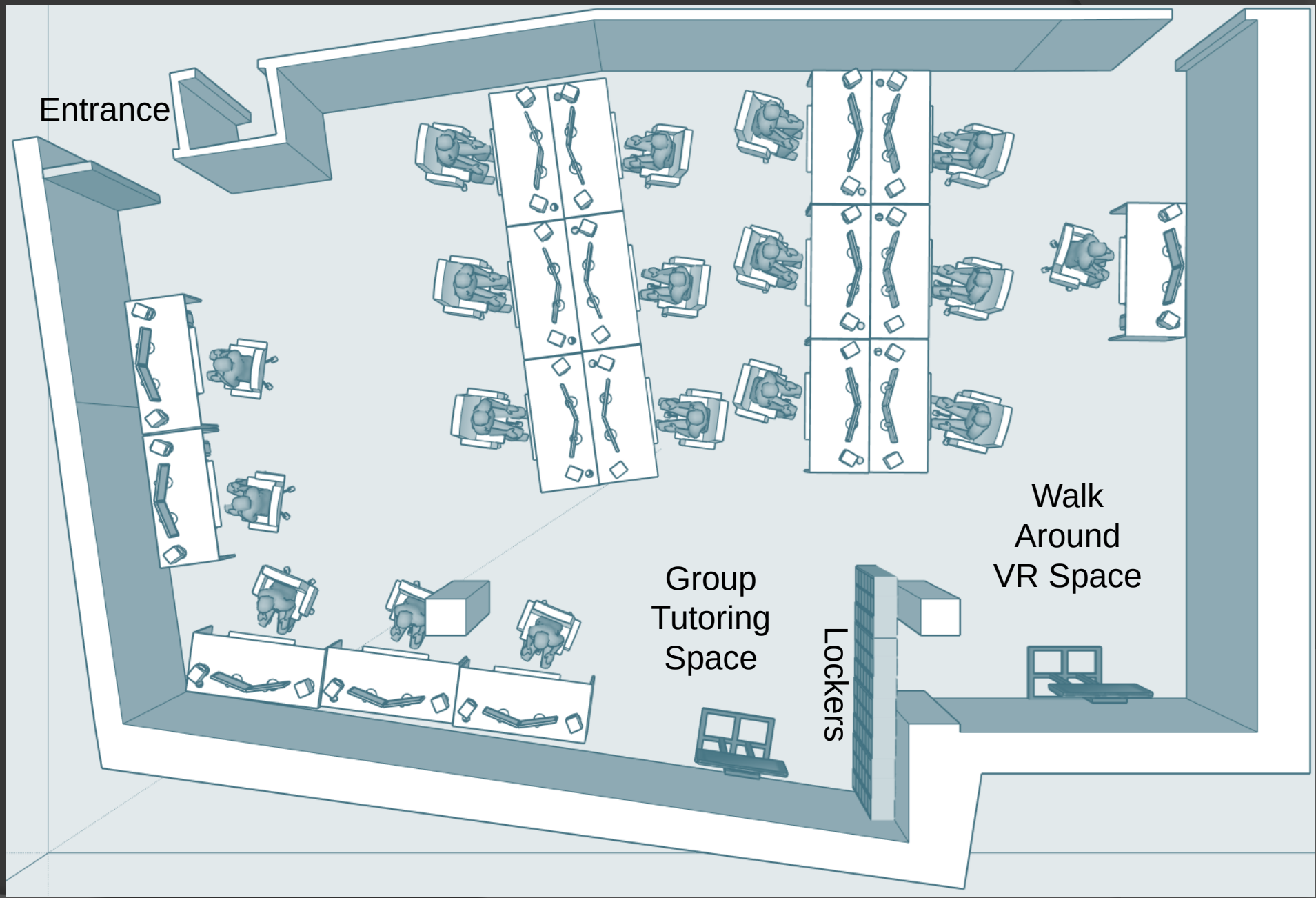
- Create computer laboratory for undergraduate education of virtual and augmented reality technologies.
- Enable students to get hands-on experience with high end consumer VR systems.
- Enable training of students on how VR hardware works and how VR software is developed.



Lab Location

- Computer Science Building
- Basement Lab 210




Entrance
Walk
Around
VR Space
Group
Tutoring
Space
Lockers

Timeline

- By end of June:
  - Finish equipment purchases
- Summer:
  - Finish furnishing
  - Install PCs and VR equipment
  - Install VR software
- Fall quarter:
  - Teach at least two courses using VR lab:
    - CSE 167: Computer Graphics
    - CSE 118/218: Ubiquitous Computing

Timeline

- Winter quarter:
  - CSE 165: 3D User Interfaces
  - CSE 190: Advanced Computer Graphics
- Spring quarter:
  - CSE 190: Virtual Reality
  - TBD
- Interested instructors include: Profs. Ramamoorthi, Wann Jensen, Weibel, Yadegari, Levy, Bratton

Lab Features

- 48 Oculus Rift HMDs with Touch controllers
- 48 Smart Phone VR viewers
- 25 VR PCs with Sony Move controllers
- 1 VR PC with HTC Vive for large area VR
- VR authoring software: Unreal Engine, CalVR
- Spatial audio library with HRTF support
- 2 79” 4k displays for group viewing and discussion
- Lockers for equipment storage

Training Areas Supported

- Interactive VR applications
- 3D user interfaces
- Dual hand interaction
- Gesture interaction
- VR rendering
- VR art
- Collaborative applications
- Mobile applications

Thank you:

- **IDI**
- **CSE**
- **ETS/ACMS**

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