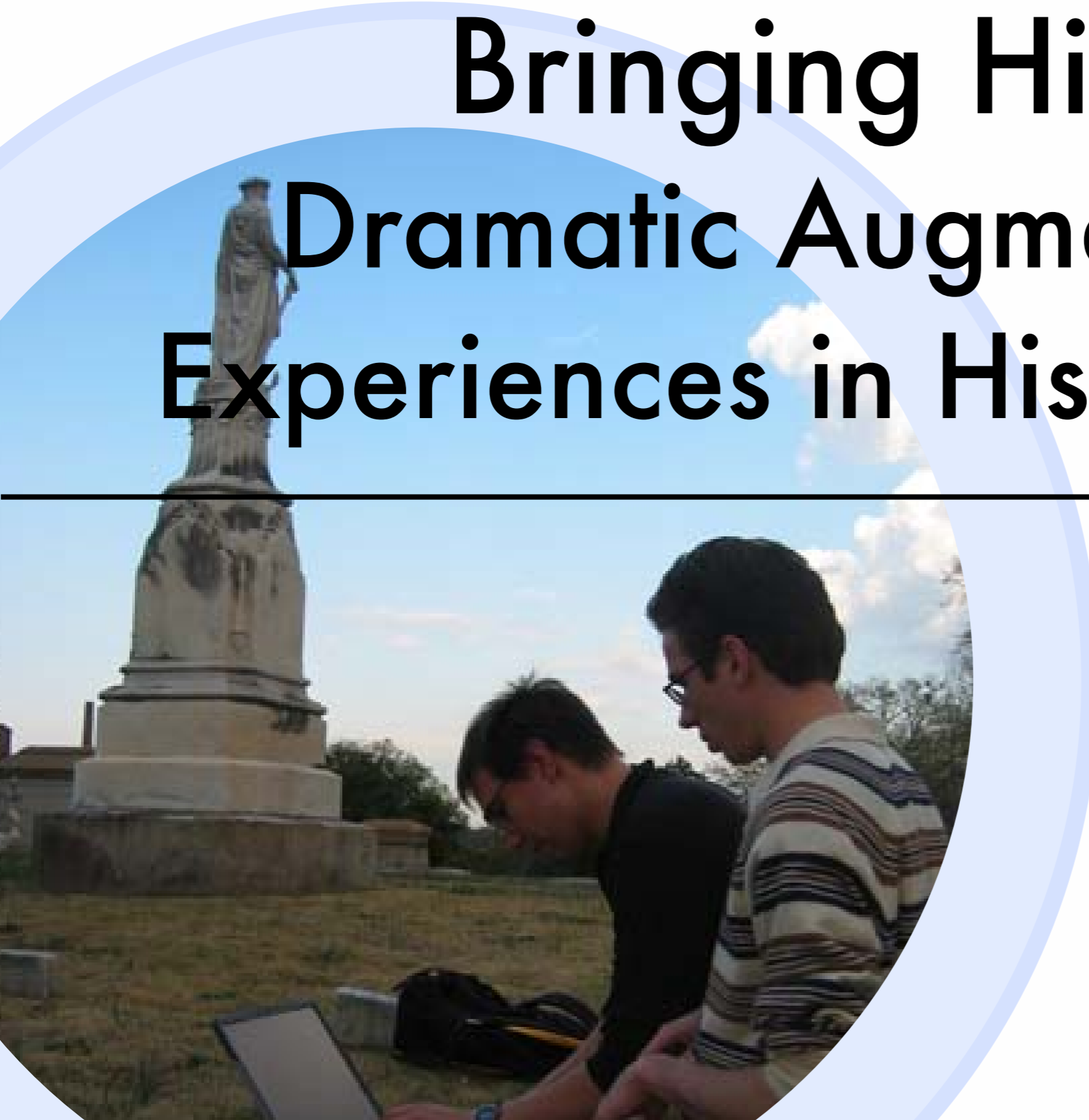# Bringing History Alive: Dramatic Augmented Reality Experiences in Historic Settings

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College of Computing
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Overview

- *Media in the world*
  - Introduction to AR and technologies
- A course on "AR Experience Design"
  - Domain: Oakland Cemetery
- AR Experiences in Historic Settings
  - What have we learned?
    - The importance of place
    - Drama vs. Documentary, Fact vs. Fiction
    - Interactivity

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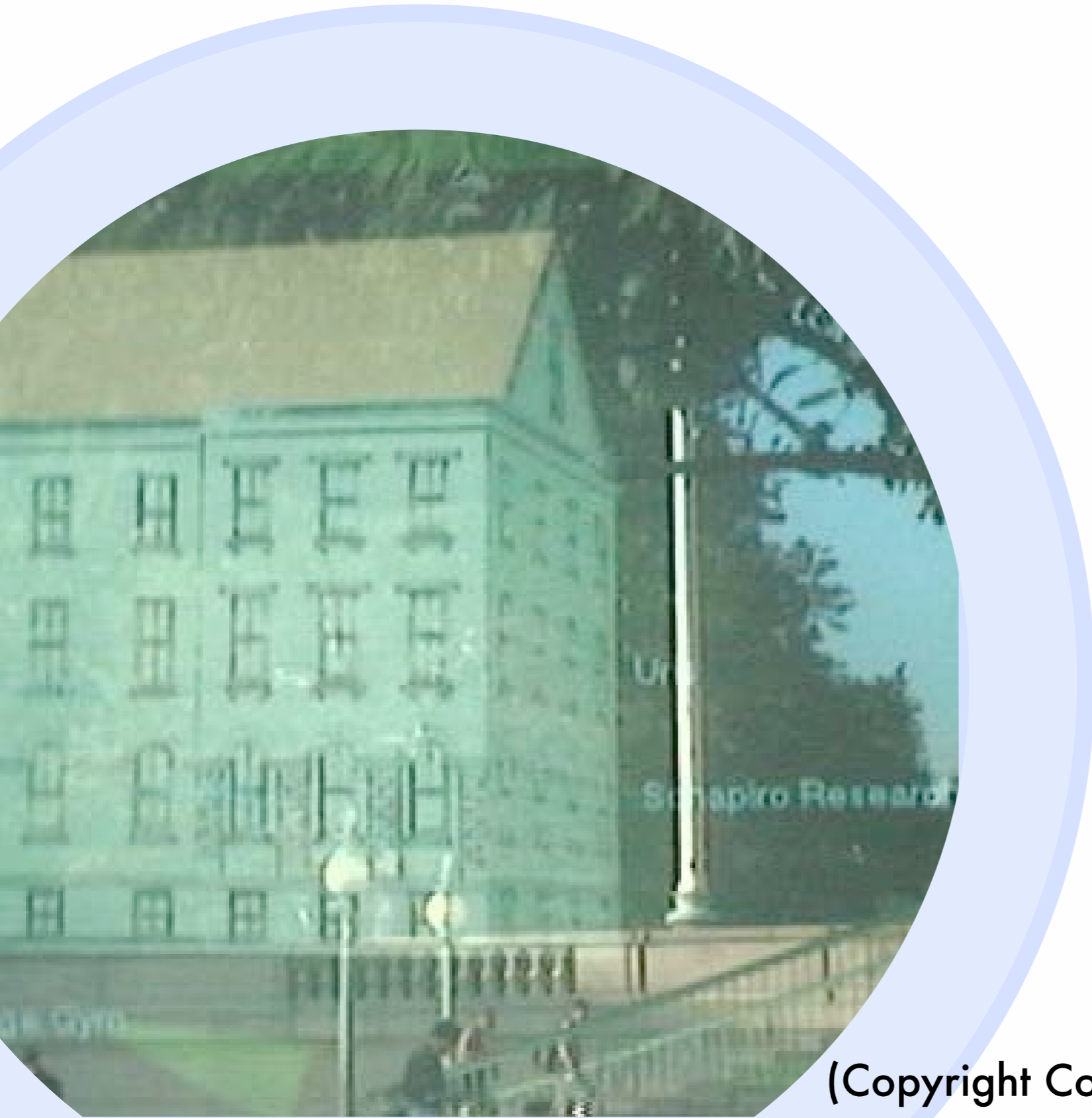   - Interactivity

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Media in the World: Augmented Reality (AR)

- Directly enhance a person's senses with synthetic information
  - 3D graphical objects and sound merged with the world
- *Out in* the Physical World
  - Use wearable computers, see-through displays
  - Display media in context of physical space

AR in Historic Settings

- **Physical re-creations**
  - Show site as it was at different times
  - Seen from perspective of visitor
- **Examples**
  - Original asylum on Columbia campus in Situated Docs/MARS
  - Greek sites with ArcheoGuide

(Copyright Columbia University)

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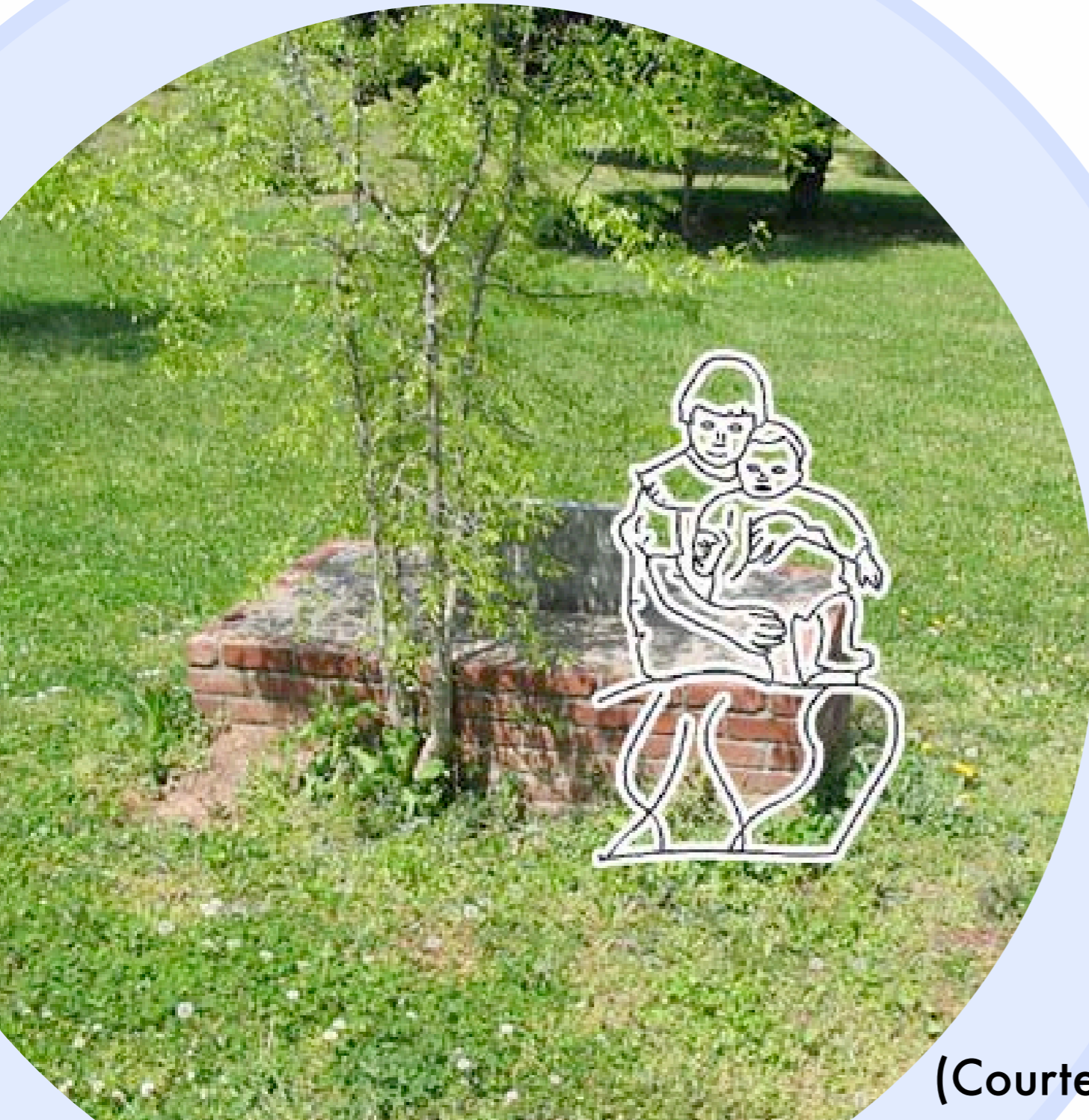georgia tech

AR in Historic Settings

- **Drama & narrative**
  - Build on non-AR tours
  - Use stories (factual or fictional) to engage, entertain
  - Recreate sites, characters, events
- **Examples**
  - Our class projects often use ghosts near graves to tell stories
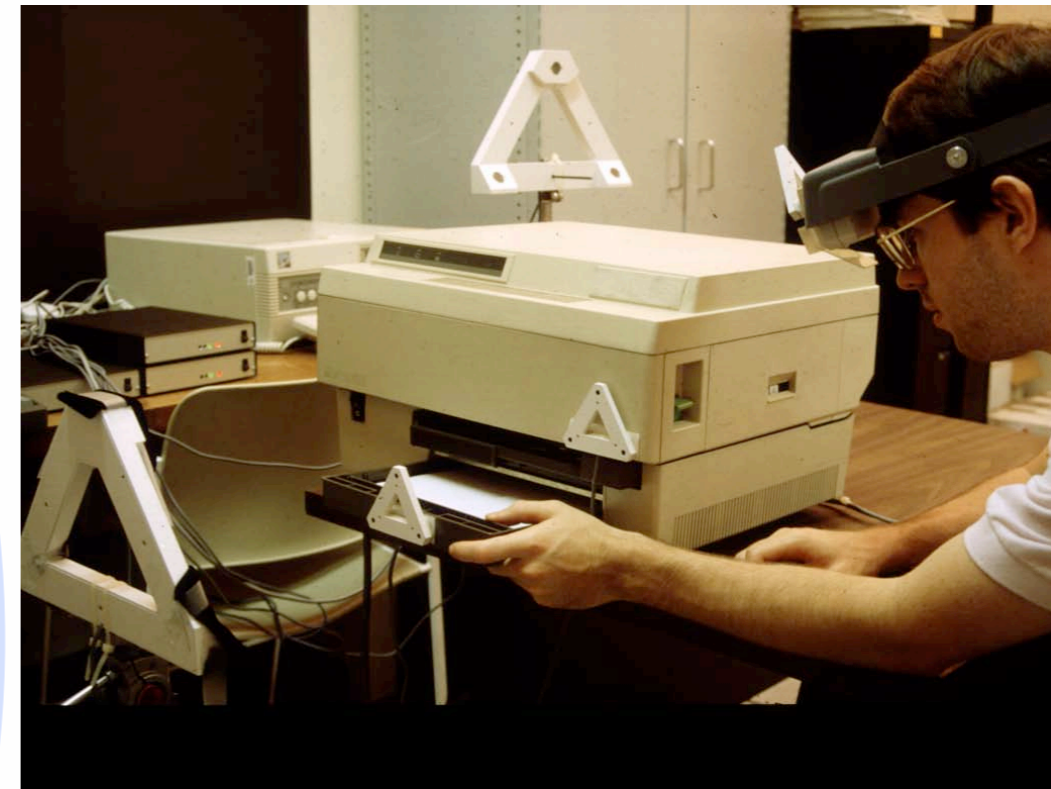
(Courtesy Smitha Prasadh)

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Why use AR?

In Place Display

Continuous Display

Private, Unobtrusive

Per-user Customization

(Courtesy Emmanuel Moreno)

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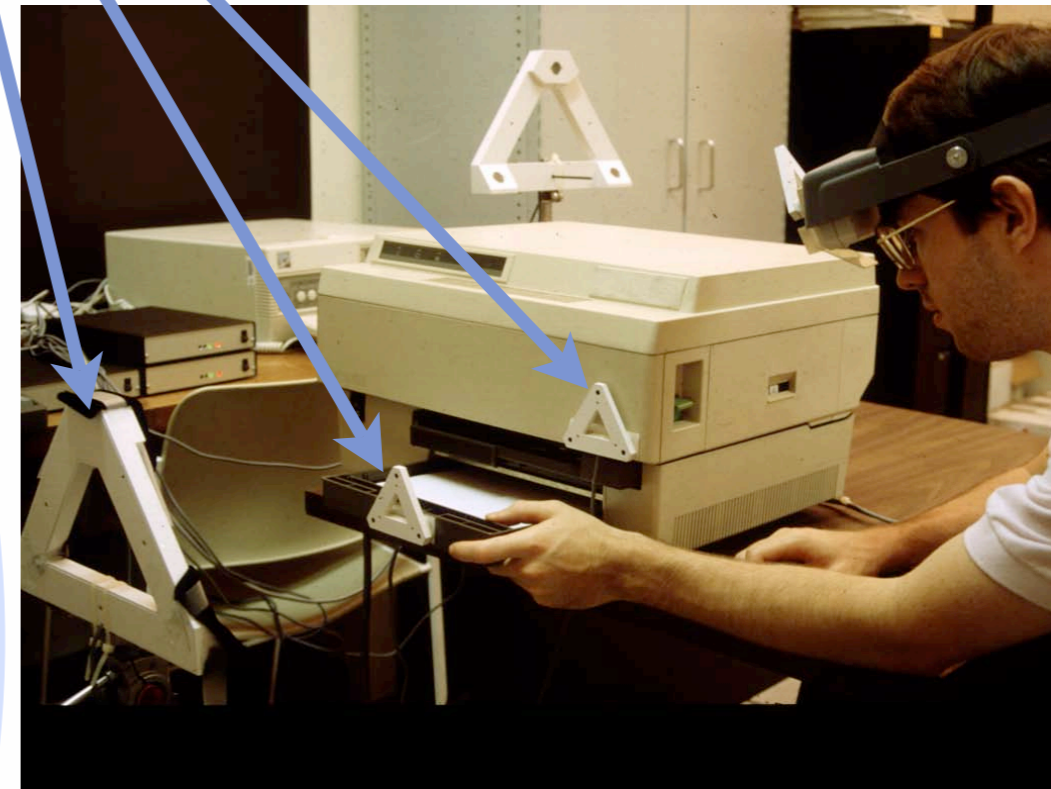center
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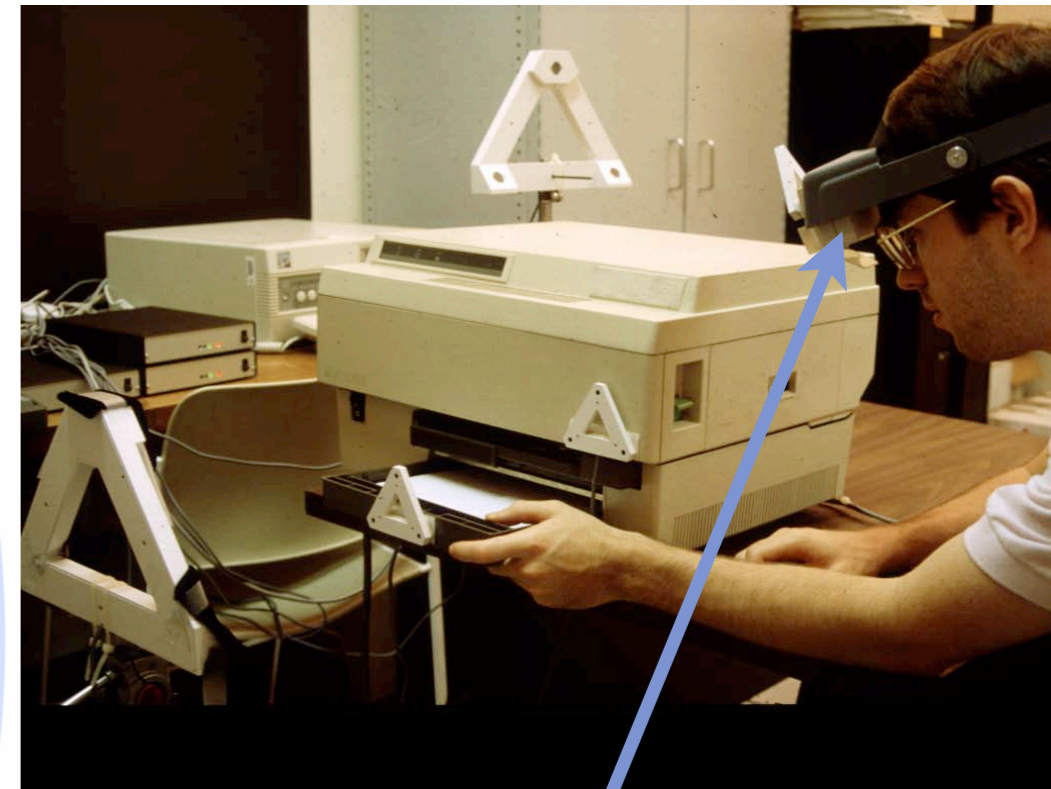
See-through display

How does AR work?

Head (display) tracking

How does AR work?

"Interesting object" tracking

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Course Overview

- **Combine concepts from New Media Design, Experience Design, Human-Computer Interaction**
  - How do we create AR experiences willing participants can understand, enjoy, learn from?
- **Projects in Historic Settings**
  - Rich content, many possible approaches, varied customers

vs

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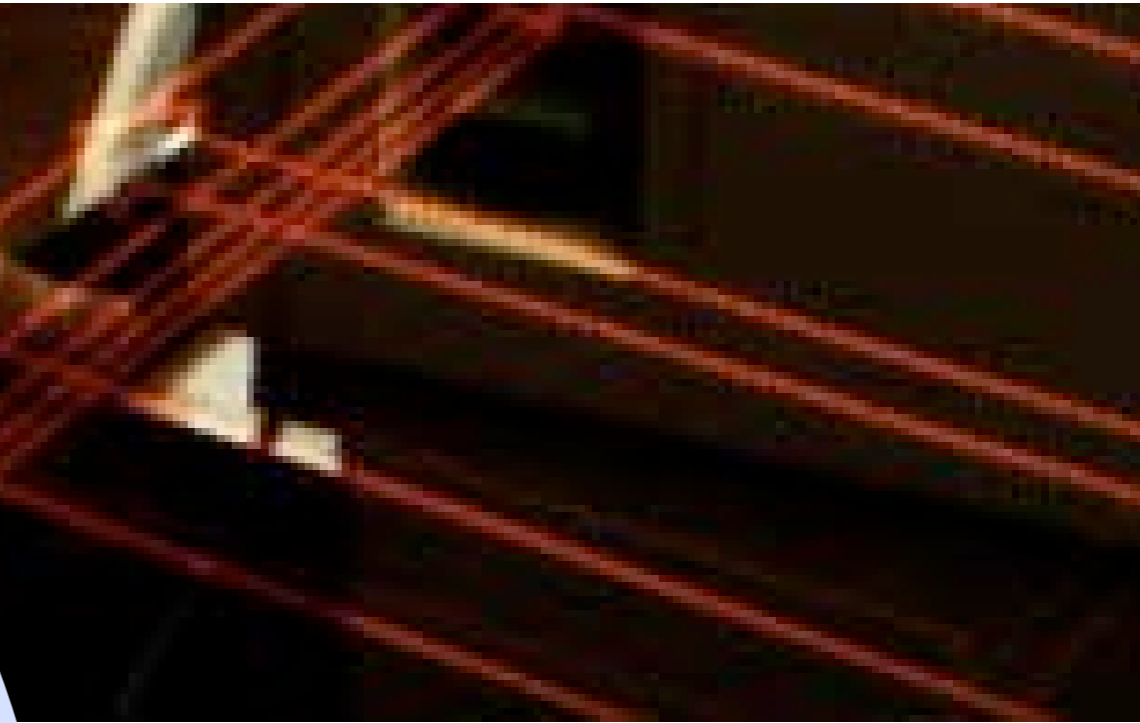
A Course on "AR Experience Design"

- **Course Content**
  - Multidisciplinary content, group projects
  - Emphasis on the design of the experience
- **Technological support for prototyping**
  - Specific support for early design activities
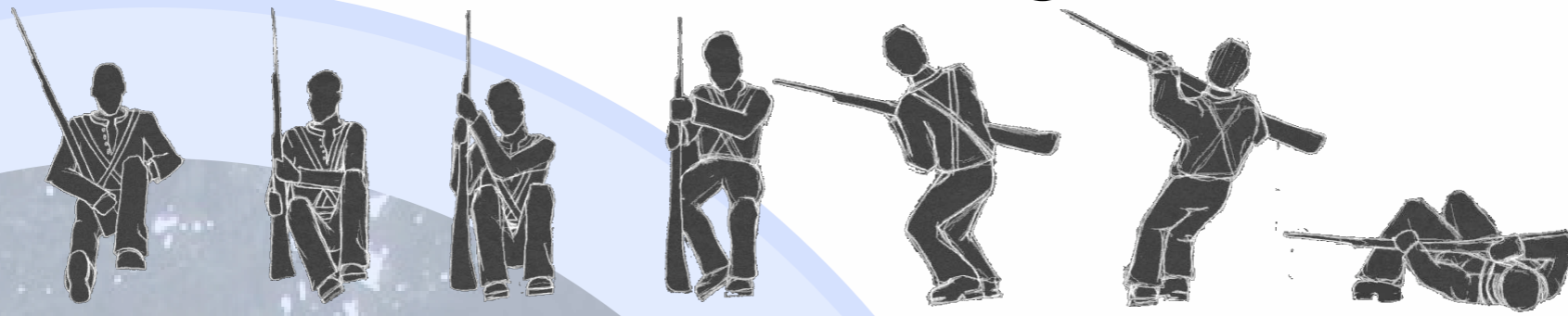- **Project focus**
  - AR Experiences in Oakland Cemetery
  - Groups can **emphasize** one or more of
    - Content, media theory, technology

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Technological Support:
DART (the Designer's AR Toolkit)
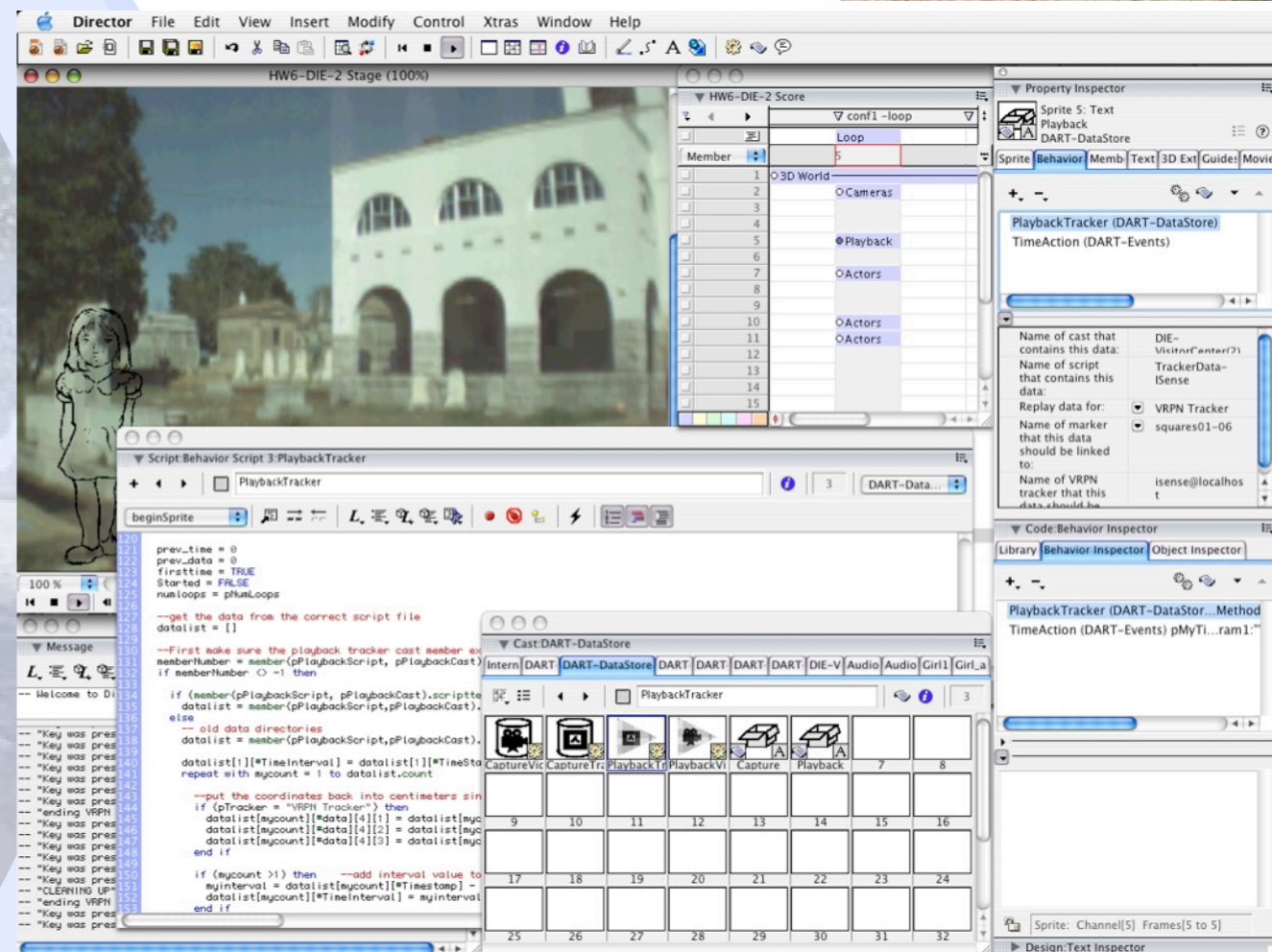

- **Built on Macromedia Director**
  - Familiar tool, model
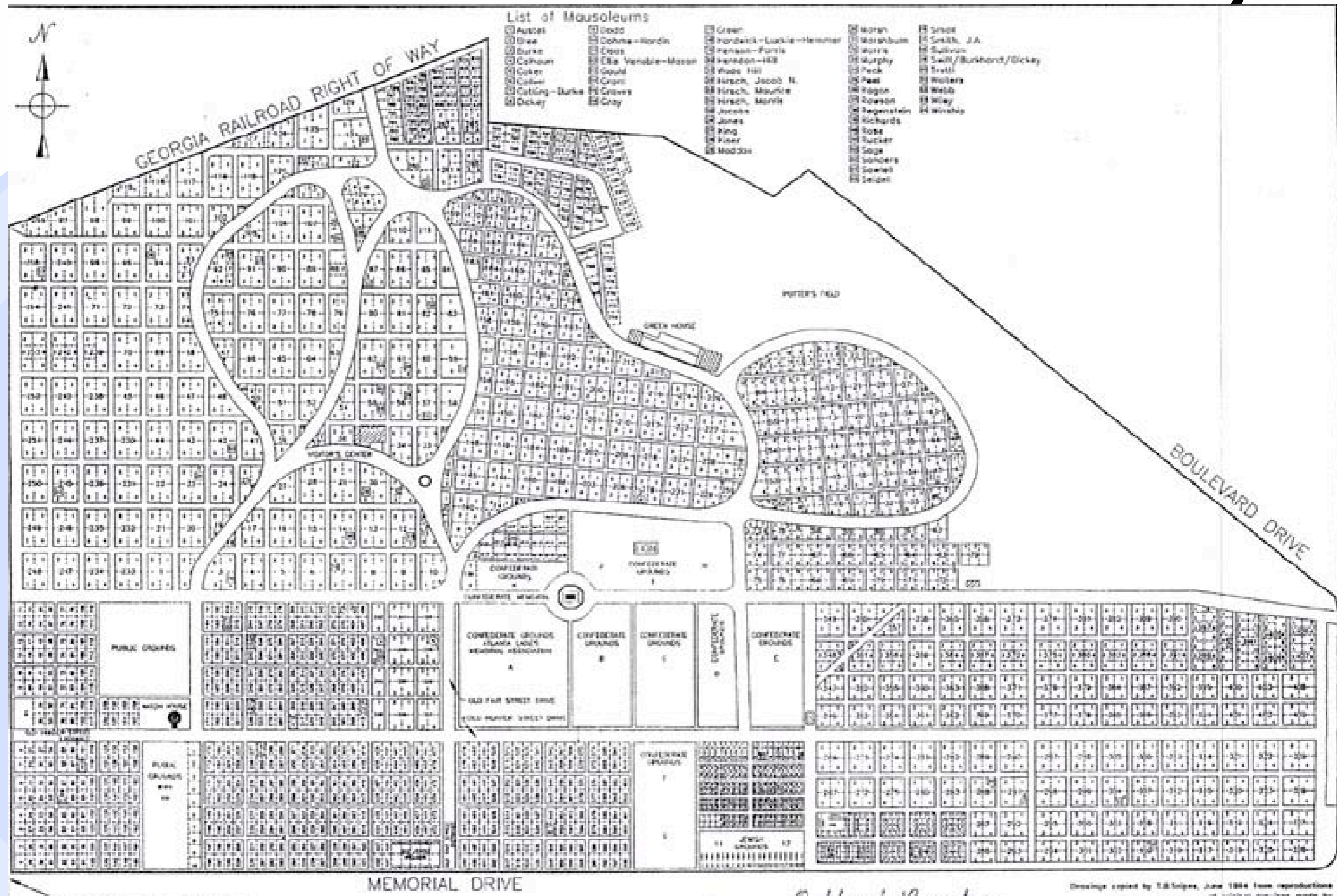- **Simple access to many technologies**
  - Camera, trackers, ...
- **Sketched 3D content**
  - Easy to experiment

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Oakland's Rich Environment

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AR in Oakland

- What kinds of experiences would be appropriate and effective?
  - Client interested in restoring the cemetery
  - No "ghost and goblins" stories, games
- What kinds of information to convey?
  - Much of US history represented
  - History of Atlanta? South? Civil War? Oakland?
- Consider context of experience
  - King District, school tours, families, tourists, …

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Recent Projects

- **Edutainment for kids**
  - The Trial of General Sherman
    - Kids divided into defense and prosecution, "find" witnesses in cemetery, watch trial unfold
  - Best all-time Mayor of Atlanta
    - Formwalt (1st), Calhoun (Civil War), Woodward (1900's), Jackson (1st Black)
- **Fun, fact-based tour retold by occupants**
  - The Story of Andrew's Raiders
    - Travel across cemetery, finish at plaque of hanging

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Recent Projects

- **Eras of the Cemetery**
  - Juxtapose historic time with areas of cemetery
    - Dense, layered, info-centric: combine stories of occupants with their place in history of the South
  - Musical Eras of Oakland
    - Enhance visit with audio representing culture of area and time-period of people buried there
- **Fictions**
  - Ghost wife of missing fictional person, visit ghosts who knew him, incidentally learn history
  - Love story of slave and Union soldier

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The importance of place

- Experience *must* integrate with the physical place
  - Otherwise, why AR?
- Leverage/enhance *aura*
  - The shared personal, cultural, historical content of the place
  - Leverage aura by integrating with the place
  - Enhance aura by increasing knowledge of the place

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Interactivity

- Passive vs. active experiences
  - Need more than just "location-triggered media"
- Cannot create true interactivity, so
  - Sense (location, view direction, sound, ...)
    - Not language, gaze, ...
  - Aggregate sensed information, infer activity
    - *NOT attention, intent, ...*
  - Leverage plausible stories that justify limits
    - e.g., ghosts can sense you, can't hear you
- Give participant sense of control

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Drama vs. Documentary, Fact vs. Fiction

- Historic content is rich and compelling

- How best to leverage *in-situ* experience?
  - Relate to objects, events, people
  - Fact ("recreate") or fiction ("leverage")

- In our experience with AR projects, fiction has not worked as well as fact

  - Relationship to space (cemetery) is weak

  - Does not leverage *aura*
    - Place feels like a set, rather than a space

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Summary

- Augmented reality enables *in-situ* media-rich experiences that keep people focused on the physical space
- Technology is "almost" there
  - Currently expensive, bulky, fragile
  - DART attempts to make it accessible
- Immersive dramatic experiences can leverage "aura" of physical space

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Further Information

For more information, see my research lab web pages
www.cc.gatech.edu/ael

For more information on DART, see
www.gvu.gatech.edu/dart

Or, contact me directly at
blair@cc.gatech.edu

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