30 JULY – 3 AUGUST *Los Angeles*

SIGGRAPH2017

COURSES

Introduction by

James Tompkin

BROWN
Computer Science

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WHO ARE WE?

Aaron Hertzmann

Oliver Wang

Jon Starck

Jordan Halsey

Christian Richardt

James Tompkin

Adobe

FOUNDRY.

VR Playhouse

UNIVERSITY OF BATH

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Computer Science

Suppose we want to look at real-world objects on a display as if we were looking at them in real life.

What would we need to capture?

PERCEPTUAL NEEDS

A head

Rotation

THE COURSE

- Introduction 09:00
- Technical Foundations
  2. 360° video 09:15

2. 360° VIDEO (09:15)

- 360° projections
- 360° cameras
  - Stitching
  - Processing
  - Analysis
- Limitations & challenges of format

Oliver Wang

Adobe

PERCEPTUAL NEEDS

A head

Rotation

An eye

Monocular

PERCEPTUAL NEEDS

A head

Rotation

Two eyes

Binocular stereo

‘3D’ **(Not really 3D!)**

THE COURSE

- Introduction 09:00
- Technical Foundations
  2. 360° video 09:15
  3. Stereo 3D videos and panoramas 09:35

3. STEREO 3D VIDEOS & PANOS (09:35)

Christian
Richardt

- Capturing and displaying stereo 3D videos
- Viewing comfort considerations
- Editing stereo 3D videos
- Creating stereo 3D panoramas

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THE COURSE

- Introduction 09:00
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  - Q & A + break (15 minutes) 09:55

THE COURSE

- Introduction 09:00
- Technical Foundations
  2. 360° video 09:15
  3. Stereo 3D videos and panoramas 09:35
- Current Practice
  4. Art, storytelling, and tools 10:10
  5. State-of-the-art cameras 10:30
  6. Industry post-production pipelines 10:50

4. ART, STORYTELLING, & TOOLS (10:10)

- History of visual storytelling media.
- VR video as an art form:
  - Special issues, needs, and artistic considerations.
- Editing VR footage paper highlight:
  - VRemiere: In-headset Virtual Reality Video Editing
  - CollaVR: Collaborative Review for VR Video

Aaron Hertzmann

Adobe

5. CURRENT CAMERAS (10:30)

- Camera rigs for stereo 360 video capture.
- Stereoscopic 360 video stitching and video formats in production.
- The practical impact on stitching in post.
- Limitations of existing camera rigs.

Jon Starck

FOUNDRY.

6. POST PRODUCTION (10:50)

- Introduction to live-action VR production.
- Overview of different camera systems in production.
- Post-production tools: node-based compositing.
- 360 stitching pipelines: setting up rigs and stitching.
- Challenges in post: clean up and CG integration.

Jon Starck

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THE COURSE

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Q & A + break (15 minutes)	11:10

PERCEPTUAL NEEDS

A head

Rotation

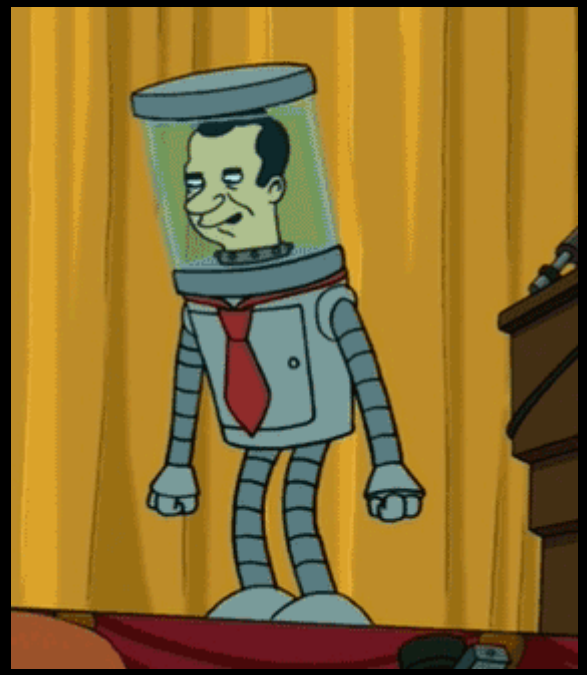
Two eyes

Binocular stereo

‘3D’ **(Not really 3D!)**

PERCEPTUAL NEEDS

A body



Motion parallax

‘6DoF’

Two eyes

Binocular stereo

‘3D’ **(Not really 3D!)**

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  6. Industry post-production pipelines 10:55
- Cutting edge 6DoF Systems
  7. Light fields basics 11:25
  8. Light field production and post-production 11:45

7. LIGHT FIELD BASICS (11:25)

- What, why, and how?
- Capturing light fields:
  - State-of-the-art cameras and future potential.
- Processing light fields:
  - Filtering, editing, challenges ahead.

James Tompkin

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8. LIGHT FIELD VIDEO PRODUCTION (11:45)

- Developing immersive experiences using light field camera arrays.
- Connecting Google JUMP to post-production workflows.
- Real-time experiences using volumetric live-action elements.

Jordan Halsey

VR Playhouse

THE COURSE

- Introduction 09:00
- Technical Foundations 09:15
- Current Practice 10:10
- Future 6DoF Systems 11:25
- Summary and outlook 12:05
  - How far do we have to go?
  - Q & A
  - Lunch (not on us)

A FEW NOTES

- A new course - feedback welcome!

- Broad audience:
  - visual computing researchers
  - video producers
  - enthusiastic video users
- Knowledge requirement: Intermediate.

- Not enough time to talk about all the great work across research, industry, tools, and production.

WHAT ARE WE NOT COVERING?

- No audio (even though it is critical)
- No haptics / proprioception
- No gustation (taste)
- No olfaction - no *smell-o-vision*

- Just the visual sense – the Latin video
  - Plenty of exciting things here

UP CLOSE AND PERSONAL

- But how?

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VR + VIDEO @

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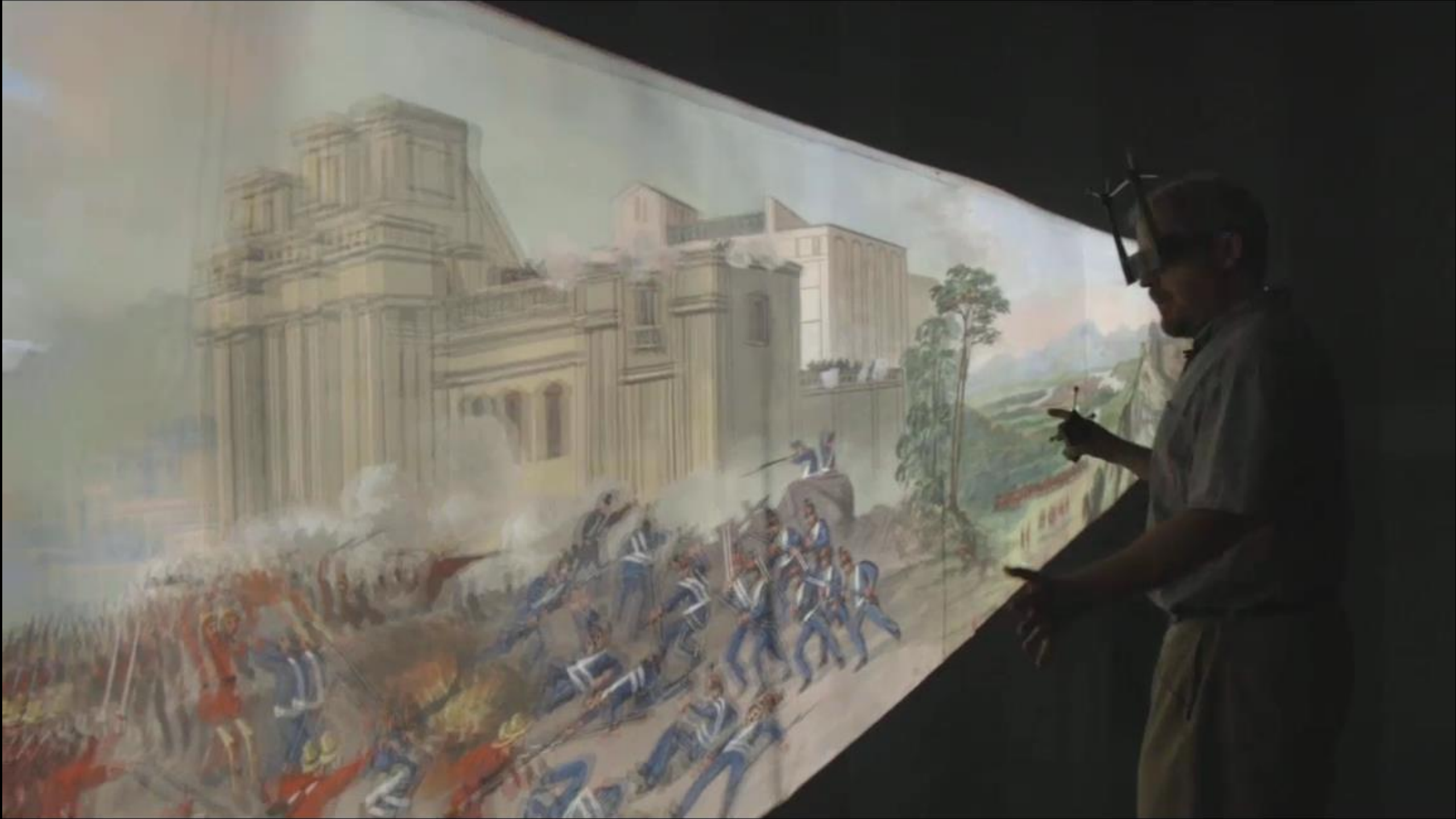
David Laidlaw

VR &
Scientific
Visualization

YURT:
Yurt Ultimate Reality Theatre

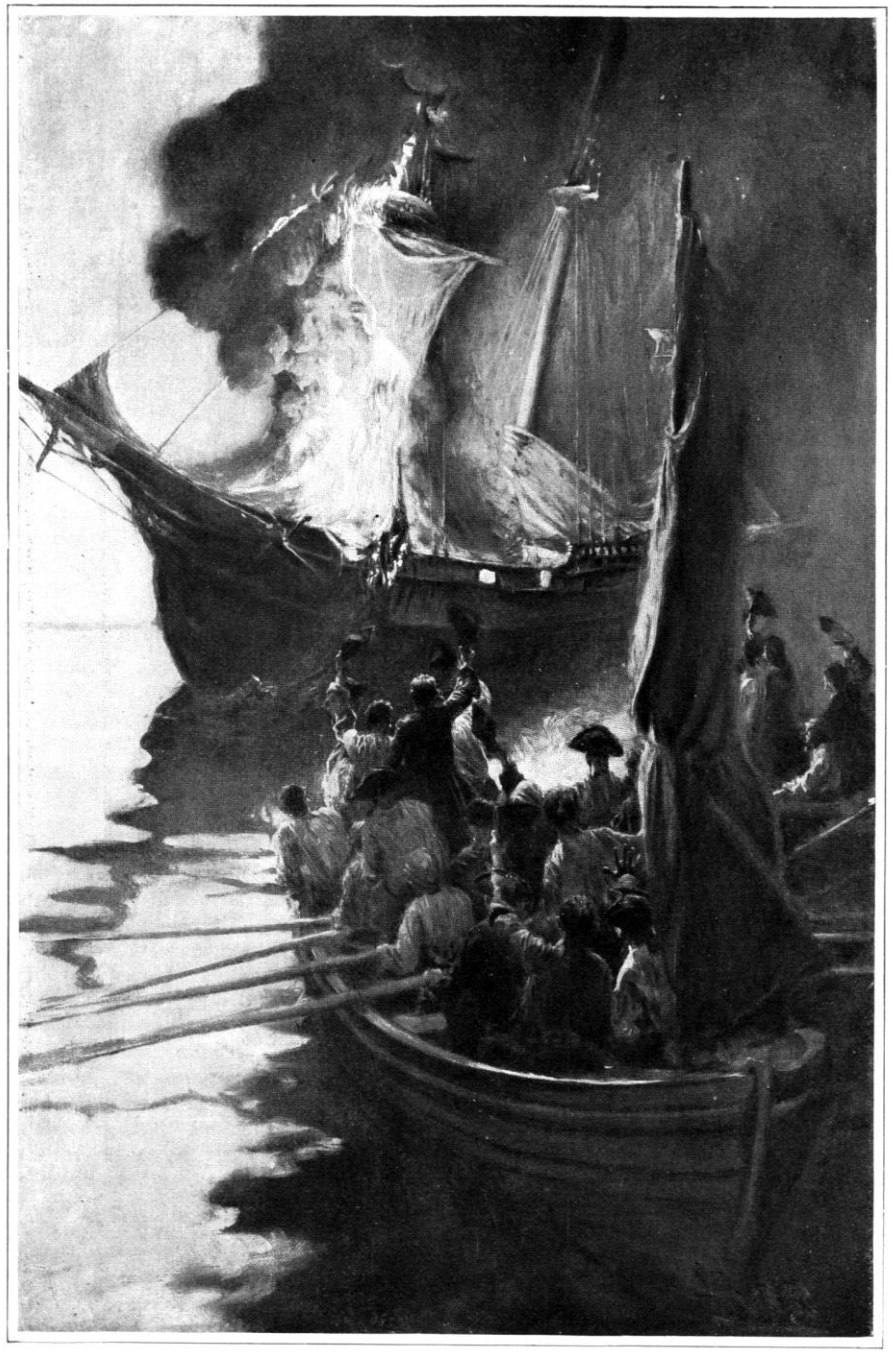
Not VR Glamping.



ADAM BLUMENTHAL

- *Virtual Reality Artist-in-Residence*
  @ Brown's Granoff Center for the Arts

- Recreating 1772 'Gaspee Affair'.
  - Rhode Islanders attacked tax enforcing HMS Gaspee.



THE BURNING OF THE "GASPEE"

Rhode Islanders grounded, boarded, and torched the ship...

…including one *John Brown*, after who the university is named.

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Harper & Brothers - *Harper's New Monthly Magazine* No. 399, August, 1883.

ADAM BLUMENTHAL

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- Recreating 1772 'Gaspee Affair'.
  - Rhode Islanders burned tax enforcing HMS Gaspee.

- 14 students in VR production course.

[Adam Blumenthal]

[Adam Blumenthal]


[Adam Blumenthal]

Ivy Film Festival @ Brown

Screened

Across the Line

de la Peña, Lichtenstein, Fitzsimmons

http://www.acrossthelinevr.com/

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Welcome!
Now over to Oliver…

360° Video

Oliver Wang

Adobe