EVENT-DRIVEN HUMAN PERFORMANCES USING NVIDIA TECHNOLOGY

ARUNA INVERSIN – CREATIVE DIRECTOR & VFX SUPERVISOR, NEW MEDIA + EXPERIENTIAL
History of Digital Humans

TITANIC (1997)
TIGHTROPE (1998)
MYA (2000)
TRIPLE X (2002)
ORVILLE REDENBACHER (2007)
THE CURIOUS CASE OF BENJAMIN BUTTON (2008)
TRON LEGACY (2010)
TUPAC (2012)
TERESA TENG (2013)
MALEFICENT (2014)
BEAUTY AND THE BEAST (2017)
READY PLAYER ONE (2018)
AVENGERS: INFINITY WAR (2018)
Propeller Guy

TITANIC (1997)
Good v. Evil

TIGHTROPE (1998)
Process (circa 1999)

ON SET PHOTOGRAPHY OF TALENT
MANUAL CONSTRUCTION OF HEAD
ARTISTS USE PHOTOGRAPHY TO CREATE TEXTURE MAPS
LIMITED FACIAL RESPONSE
SIMPLE LIGHTING
xXx
(circa 2002)
Orville

ORVILLE REDENBACHER
(2007)
Better Process (circa 2009)

- Improved cameras to capture facial motion
- Use the Facial Action Coding System (FACS) to drive shapes in the face
- Not using marker based capture, but using UV makeup
- USC Institute for Creative Technologies (ICT) – Light Stage
- 155 people over two years for 325 shots in The Curious Case of Benjamin Button
Benjamin Button

THE CURIOUS CASE OF BENJAMIN BUTTON (2008)
CLU

TRON LEGACY (2010)
PIXIES
MALEFICENT (2014)
Beast

BEAUTY AND THE BEAST (2017)
Wade Watts

READY PLAYER ONE (2018)
Event Driven Performances

2Pac at Coachella (2012)  

Teresa Teng (2013-2015)
Process (circa 2019)

- **Masquerade** – using ML to retarget both marked and unmarked faces to digital double
- **Bullseye** – used to track markers, and using computer vision techniques figures out where they should be
- **GAN** – General Adversarial Networks, used to enhance training data
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