



S9910

EVENT-DRIVEN HUMAN PERFORMANCES USING NVIDIA TECHNOLOGY

ARUNA INVERSEN – CREATIVE DIRECTOR & VFX SUPERVISOR, NEW MEDIA + EXPERIENTIAL



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)

History of Digital Humans



Propeller Guy

TITANIC (1997)



Good v. Evil

TIGHTROPE (1998)



Mya

MOTOROLA (2000)

Process (circa 1999)



ON SET PHOTOGRAPHY OF
TALENT



MANUAL CONSTRUCTION
OF HEAD



ARTISTS USE
PHOTOGRAPHY TO CREATE
TEXTURE MAPS

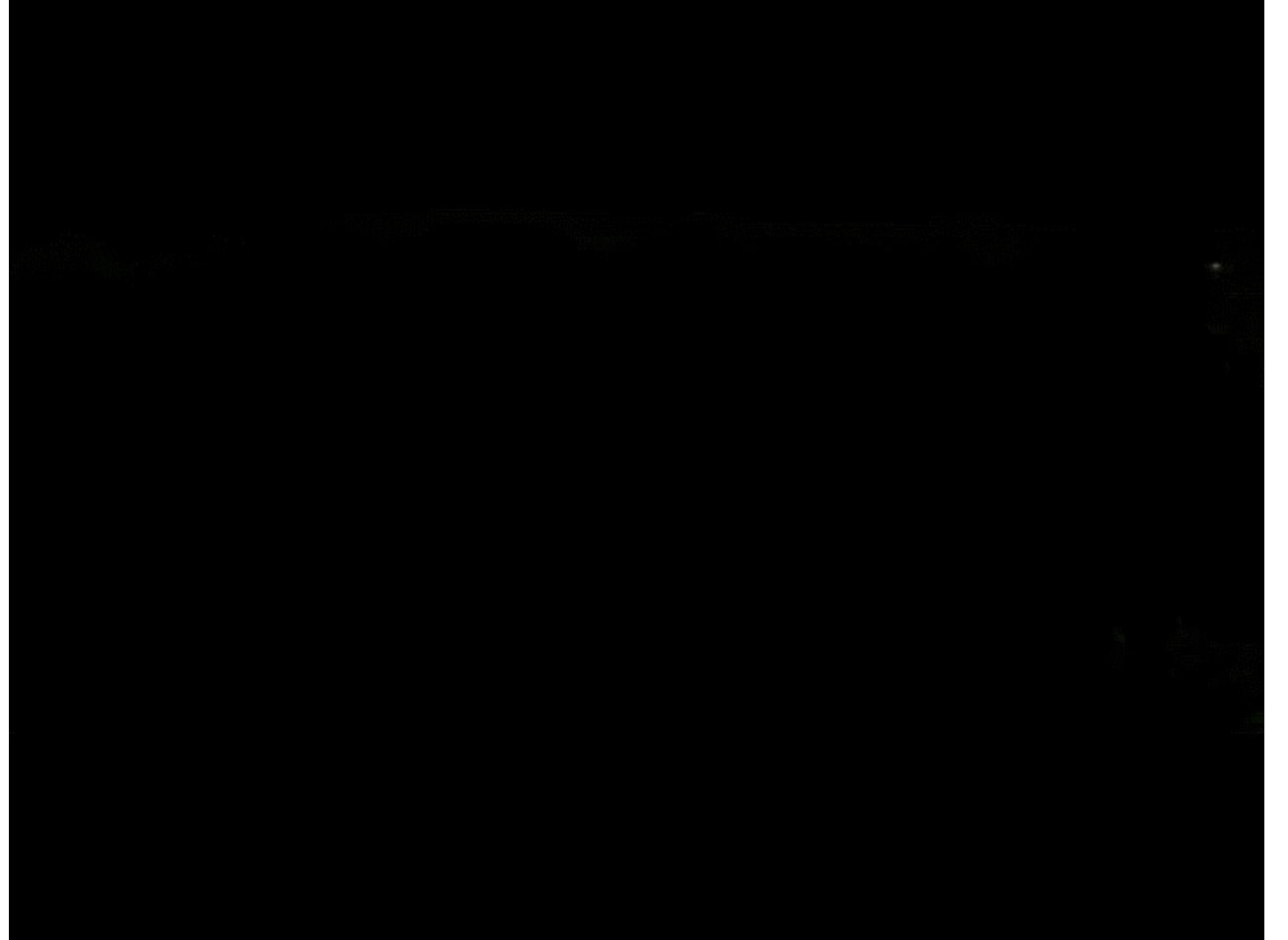


LIMITED FACIAL RESPONSE



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)



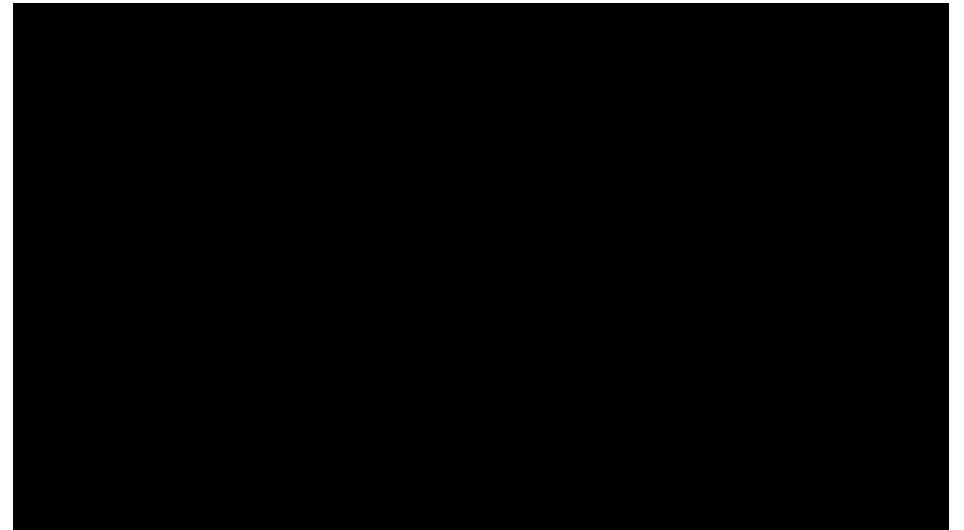
Wade Watts

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 visions techniques figures out where they should be
- ▶ GAN – General Adversarial Networks, used to enhance training data



#MachineLearning





#MachineLearning







DIGITAL DOMAIN

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