

onLIVE™



Innovation and IP in Today's Business Environment

Steve Perlman

President & CEO

Rearden Companies, OnLive and MOVA



I am an American inventor

- 90 US patents, >100 pending
 - Always been a pure “Practicing Entity” (PE)
 - Never licensed patents or sued for infringement
 - Patents used for funding, partnerships, defending markets
- Some products I’ve invented:
 - OnLive®, Mova®, QuickTime®, WebTV®, Moxi®
- Corporate roles
 - Division President, Microsoft
 - Principal Scientist, Apple
- Startup roles (founder/CEO/CTO of most)
 - OnLive, Mova, Ice Blink, Moxi, WebTV, Catapult, Gen. Magic

You've used my inventions

- My inventions are used in/deployed by:
 - Computers: Macintosh, Windows
 - PDAs: iPhone, iPod, WinCE, Motorola, Sony
 - Satellite boxes: DirecTV, Dish
 - Cable boxes: Comcast, Time Warner, Charter Cable
 - Video games: Microsoft, Nintendo, Sega
 - Movies: *The Curious Case of Benjamin Button*, *The Incredible Hulk*
 - Set-top boxes: Sony, Philips, Samsung, Panasonic, RCA, Fujitsu, Mitsubishi, Sci. Atlanta

America relies on invention

- Increasingly, US is an **idea-based economy**
 - If we cease to innovate, economy collapses
- Innovation relies on **market power** to survive
- **Patents** are one form of **market power**
 - Essential to startups, entrepreneurs and universities
 - Net positive to almost all US industries and institutions
 - Net negative (recently) to Big High Tech companies
- Big High Tech now seeks to weaken patents
 - It is called “Patent Reform”

- Patent Reform Acts of 2005, 2007 and 2009
 - Supporters: Big High Tech, tech-reliant media
 - Opposers: **Every other constituency, including inventors**
- The progenitors of the subject **patents**?
 - **Inventors.**
- Practicing **inventors** permitted to testify?
 - **One.**
- Practicing **inventors** in stakeholder meetings?
 - **None.**

Not surprisingly,
the Patent Reform Acts
misses details
of the process of invention.

Try being an inventor
and you'll see why.



The Invention of Mova[®] Contour[™] Reality Capture

Step 1: Get ready for a rough road.

It's hard to be an inventor.

Build a better mousetrap and the world will beat
a path to your door.

—Ralph Waldo Emerson, 1871¹



The fate of better mousetraps

Wrong, Mr. Emerson:

- Better marketing will beat a path to your door
- Better inventions are actually harder to market
 - Most people are resistant to radical change
 - Inventions take a lot of work to make successful
 - Even so, anything can cause them to fail

The reality of invention

One would not, ... of all faculties, or qualities of the mind, wish for a friend, or a child, that he should have that of **invention**.

For his attempts to benefit mankind in that way, however well imagined,

if they do not succeed, expose him, though very unjustly, to **general ridicule and contempt**; and,

if they do succeed, to **envy, robbery, and abuse**.

—Benjamin Franklin, 1755¹



Right, Mr. Franklin:

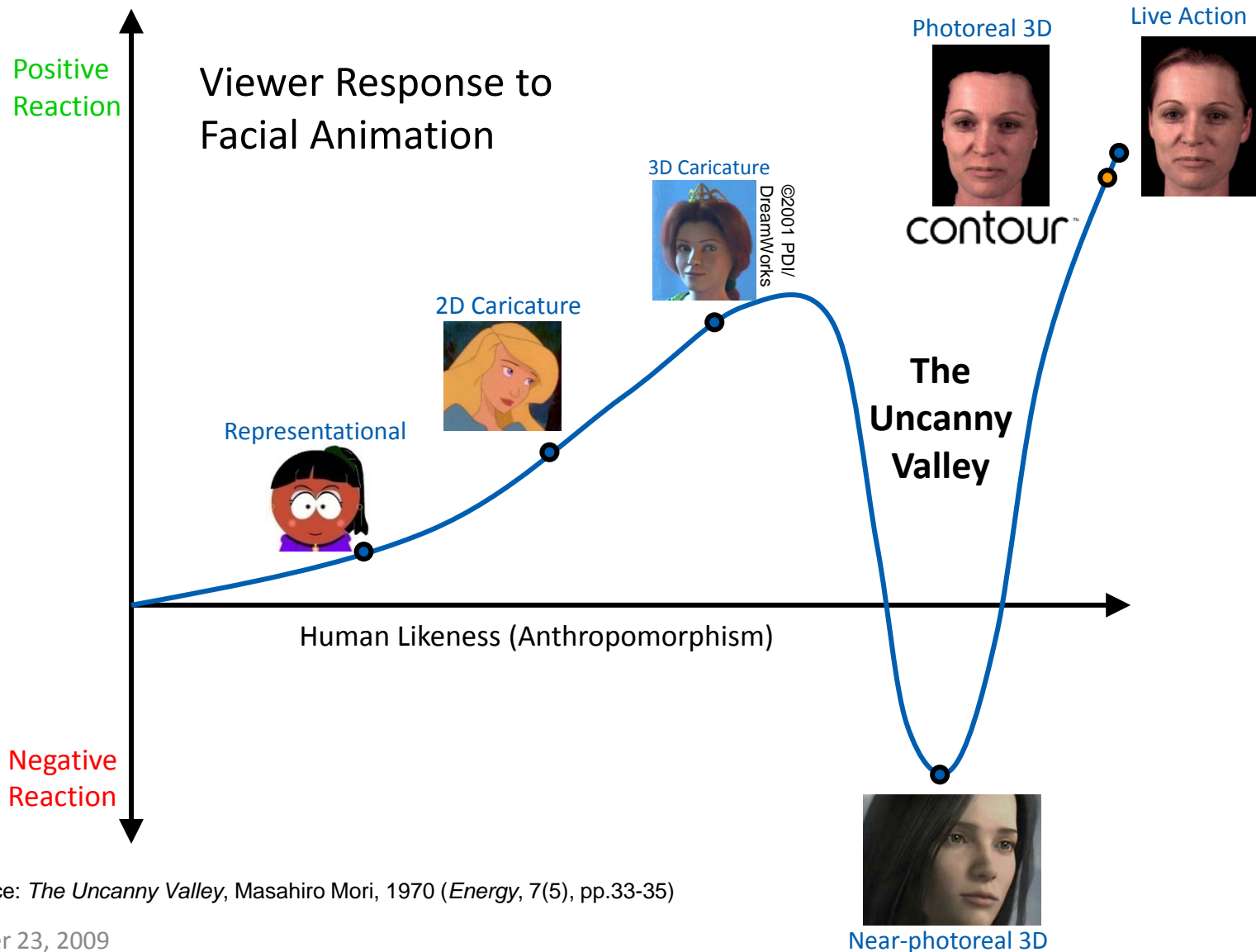
- Good inventions disrupt:
 - Sales
 - Marketing
 - Stock prices
 - Bonuses
 - Egos
- Inventions rock many boats and sink others
- And...inventions drive the US economy and improve quality of life



The Invention of Mova[®] Contour[™] Reality Capture

Step 2: Necessity is the mother of invention.
Identify the need.

The need: create realistic 3D faces



Source: *The Uncanny Valley*, Masahiro Mori, 1970 (*Energy*, 7(5), pp.33-35)



The Invention of Mova[®] Contour[™] Reality Capture

Step 3: Immerse yourself in prior art.

Study the teachings of prior inventors.

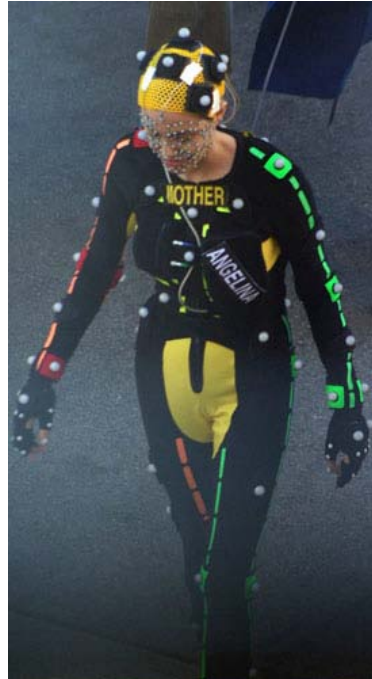
Understand the problems with prior art



- Marker-based motion capture was tedious and intricate
- A test animation (woman pirate) produced very poor results



Tom Hanks in
The Polar Express, 2004



Angelina Jolie in
Beowulf, 2007

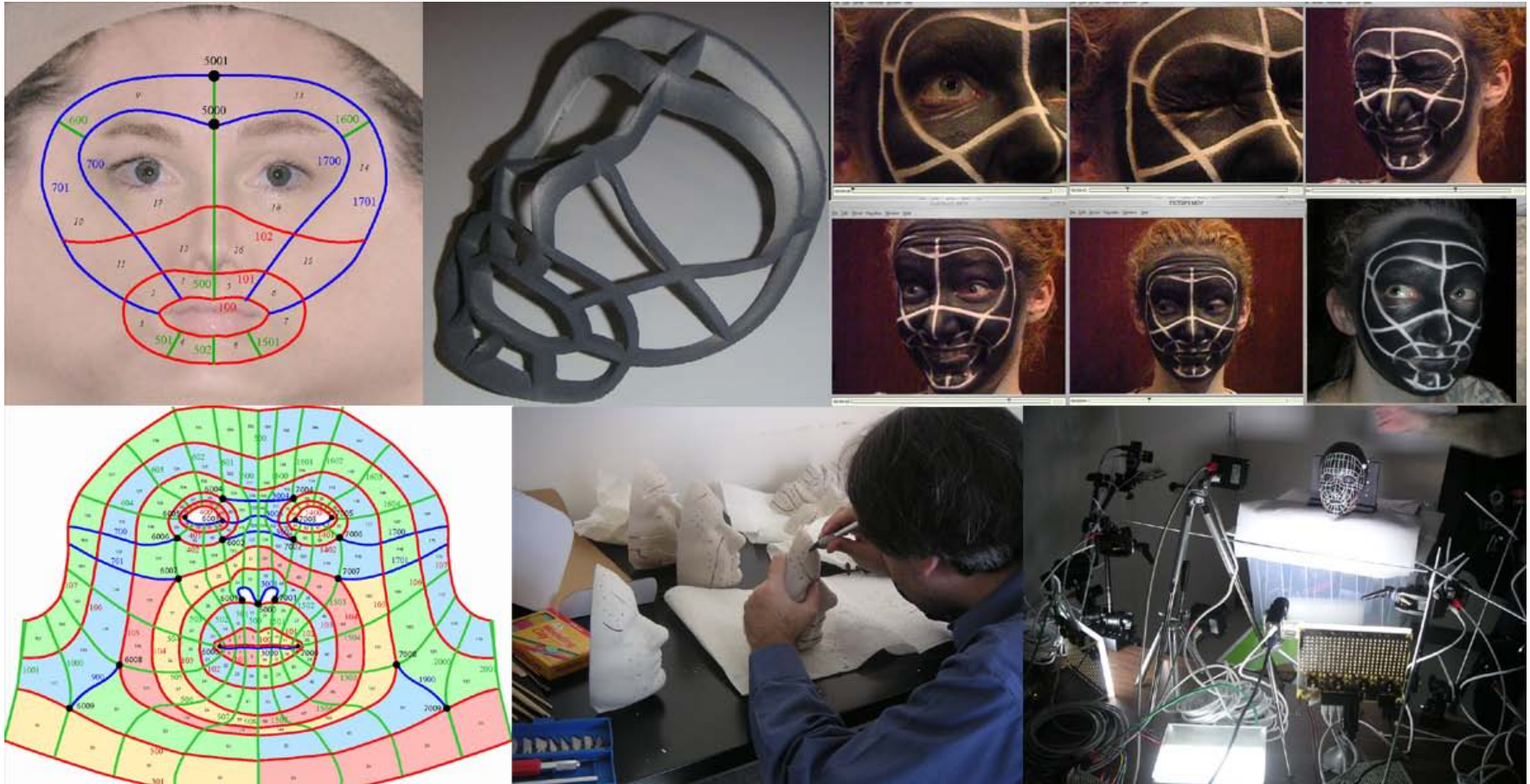
- Computer-generated (CG) faces didn't look real
 - Production costs were high, actors were uncomfortable



The Invention of Mova[®] Contour[™] Reality Capture

Step 4: Begin experimenting. It may take years.
Try everything you can think of.

Iterate on lots of prototypes



Learn from *every* failure



(Tip: avoid being the test subject.)

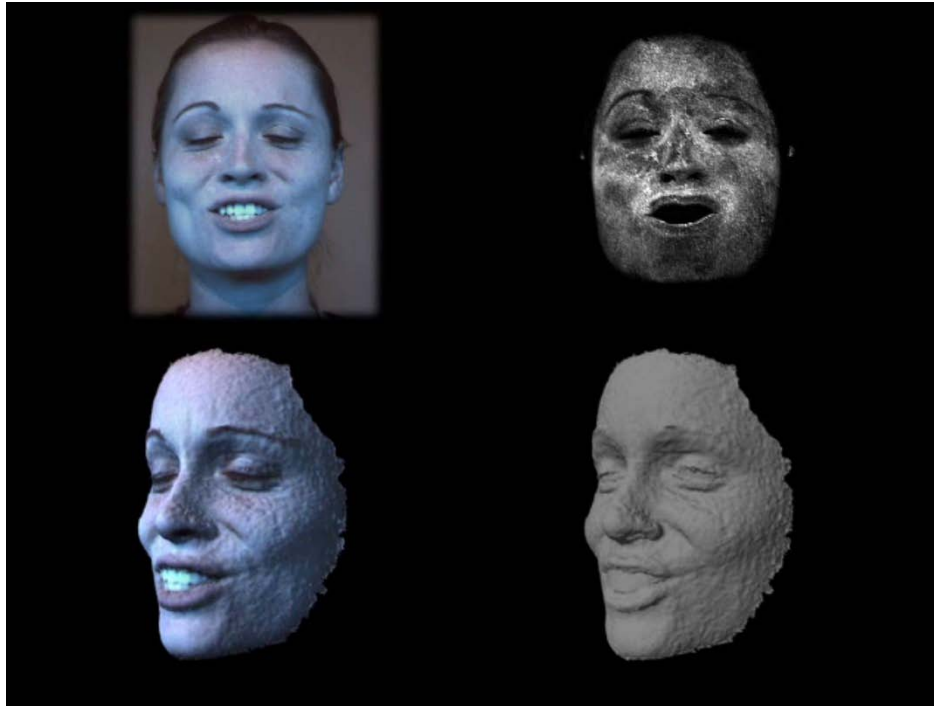




The Invention of Mova[®] Contour[™] Reality Capture

Step 5: The breakthrough.

The “aha” moment when you know the world will never be the same.



- A failed experiment gave us a key insight
 - Combining 2 prior approaches resulted in a huge leap forward
- The prototype worked but was expensive



The Invention of Mova[®] Contour[™] Reality Capture

Step 6: Refinement.

Cost-reduction, tuning, shaping into product.



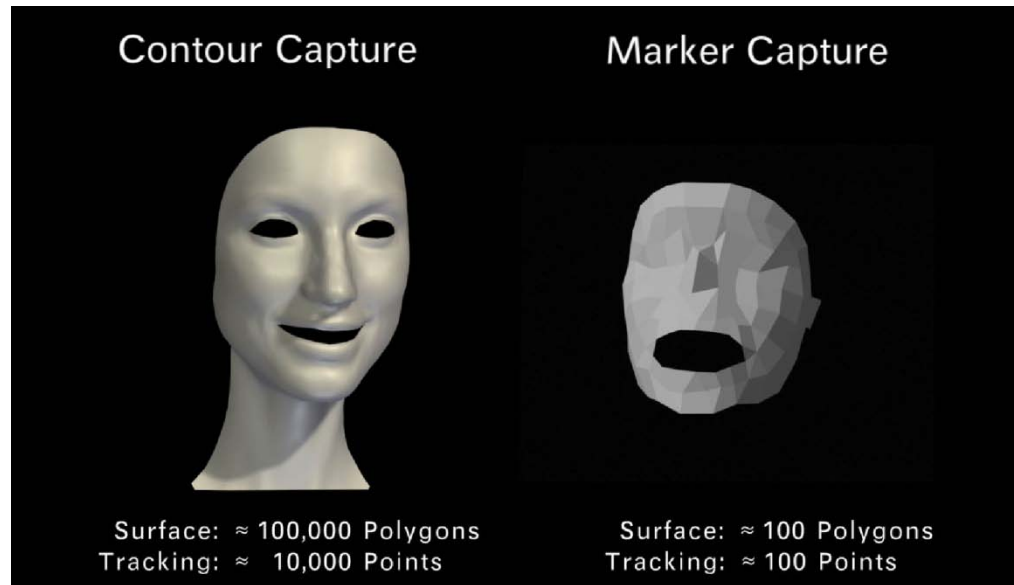
- Technology tuned, optimized, polished and packaged
 - Algorithm improved by more than 1000x in efficiency
 - Days of computation were reduced to minutes
 - Audio, cloth capture integrated
- Ancillary inventions were needed
 - LED lighting 100x too expensive; invented a way to strobe cheap fluorescents
 - Invented phosphorescent makeup and application techniques



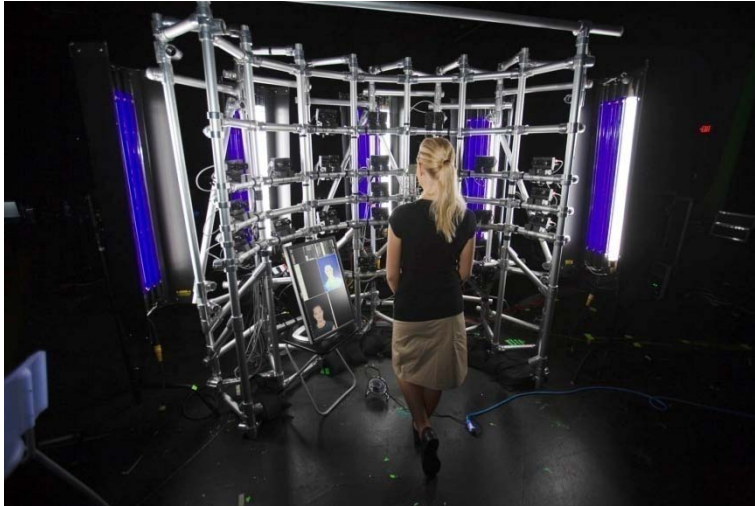
The Invention of Mova[®] Contour[™] Reality Capture

Step 7: Marketing.

Brochures, website, tradeshow, press.



- File last (and best) patents on day of announcement
 - Preserve right to file internationally
 - Literally, we were working on patents on floor of booth



- Unveil at trade show (Siggraph 2006)
 - Get feedback from prospective customers
- Educate world about new technology

Be extolled and demeaned by press



ISRAEL SUSPENDING LEBANON AIR RAIDS AFTER DOZENS DIE

From Carnage, A Concession

Concerned, U.S. Goes Quick Tactical Change

By Helene Cooper
JERUSALEM, July 30 — Israel's military on Monday suspended its air raids on Lebanon after dozens of Lebanese civilians were killed in a recent attack, according to a senior U.S. State Department official. The official said the suspension was a tactical change, not a permanent one, and that Israel would resume its air strikes if the situation in Lebanon worsened.

U.S. Puts Onus On Employers Of Immigrants

By Helen F. Miller
WASHINGTON, July 30 — Immigrants who appear to be working in the United States illegally are being targeted by a new federal law that places the onus on employers. The law, which is part of a broader effort to reform immigration policy, requires employers to verify the legal status of their employees. Failure to do so could result in fines and penalties.

Night of Death and Terror for Lebanese Villagers

By Helene Cooper
JERUSALEM, July 30 — A night of death and terror for Lebanese villagers as Israeli air strikes targeted a town in the north. The attacks, which were part of a broader military operation, resulted in the deaths of several civilians and the destruction of property.

A Decade Later, It Is Again a Day When the Children Die

By Helene Cooper
JERUSALEM, July 30 — A decade after the start of the intifada, the day when children are killed in the streets of the West Bank has become a grim reminder of the conflict. The deaths of children are a source of deep sorrow for many Israelis and Palestinians alike.

HALT OF 48 HOURS

Rice Visit Is Cut Short — Casualties Include Many Children

By Helene Cooper
JERUSALEM, July 30 — The visit of U.S. Secretary of State Condoleezza Rice to the West Bank was cut short by 48 hours of Israeli military operations. The operations, which were part of a broader military operation, resulted in the deaths of several civilians and the destruction of property.

Men Not Working, and Not Wanting Just Any Job

By Helene Cooper
JERUSALEM, July 30 — Many men in the West Bank are not working and are not interested in any job. This is a result of the economic situation in the region, which has been severely impacted by the conflict.

A Small Charity Takes the Reins In Fighting a Neglected Disease

By Helene Cooper
JERUSALEM, July 30 — A small charity has taken the reins in fighting a neglected disease in the West Bank. The charity, which is dedicated to providing medical care and support to those affected by the disease, has been instrumental in raising awareness and funding for research and treatment.

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Not the Only Steve with a Reality Distortion Field

David Card | July 31, 2006, 08:28 AM

I love [Steve Perelman](#). He's got the charm on top of his geek-cred that Rob Glaser's never been able to pull off. Perelman's charmed both the [Times](#) and the [Journal](#) into heavy coverage of his latest motion-capture technology play. But how is "Contour" different than the current state of the art?

"Steve is really on to something here," said Ed Ulbrich, vice president of Digital Domain, a Hollywood special-effects company in Venice, Calif. "The holy grail of digital effects is to be able to create a photorealistic human being..."

"...It's been used in stunts and big special-effects scenes," Mr. Ulbrich said. "Now you can use it for two actors sitting at a table and talking. You have the ability to tell stories and have close-up scenes that make you laugh and cry."

Two actors, sitting at a table. Wow.



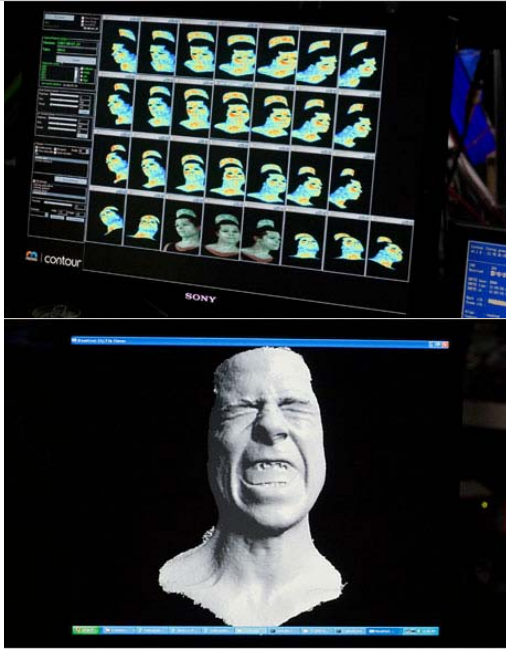
The Invention of Mova[®] Contour[™] Reality Capture

Step 8: Release product to the market.
Make history.



- Edward Norton and Tim Roth's faces captured
 - "The Hulk" and "The Abomination"

The Curious Case of Benjamin Button



- Brad Pitt's face captured for aging effects
 - Particularly challenging to match younger Brad Pitt
- Academy Award® for Best Visual Effects—first CG face
 - Also Brad Pitt nominated for Best Actor—first CG face



The Invention of Mova[®] Contour[™] Reality Capture

Step 9: Integrate Mova Contour into OnLive.

Bring live-action realism to video games.

Bring photoreal faces to video games

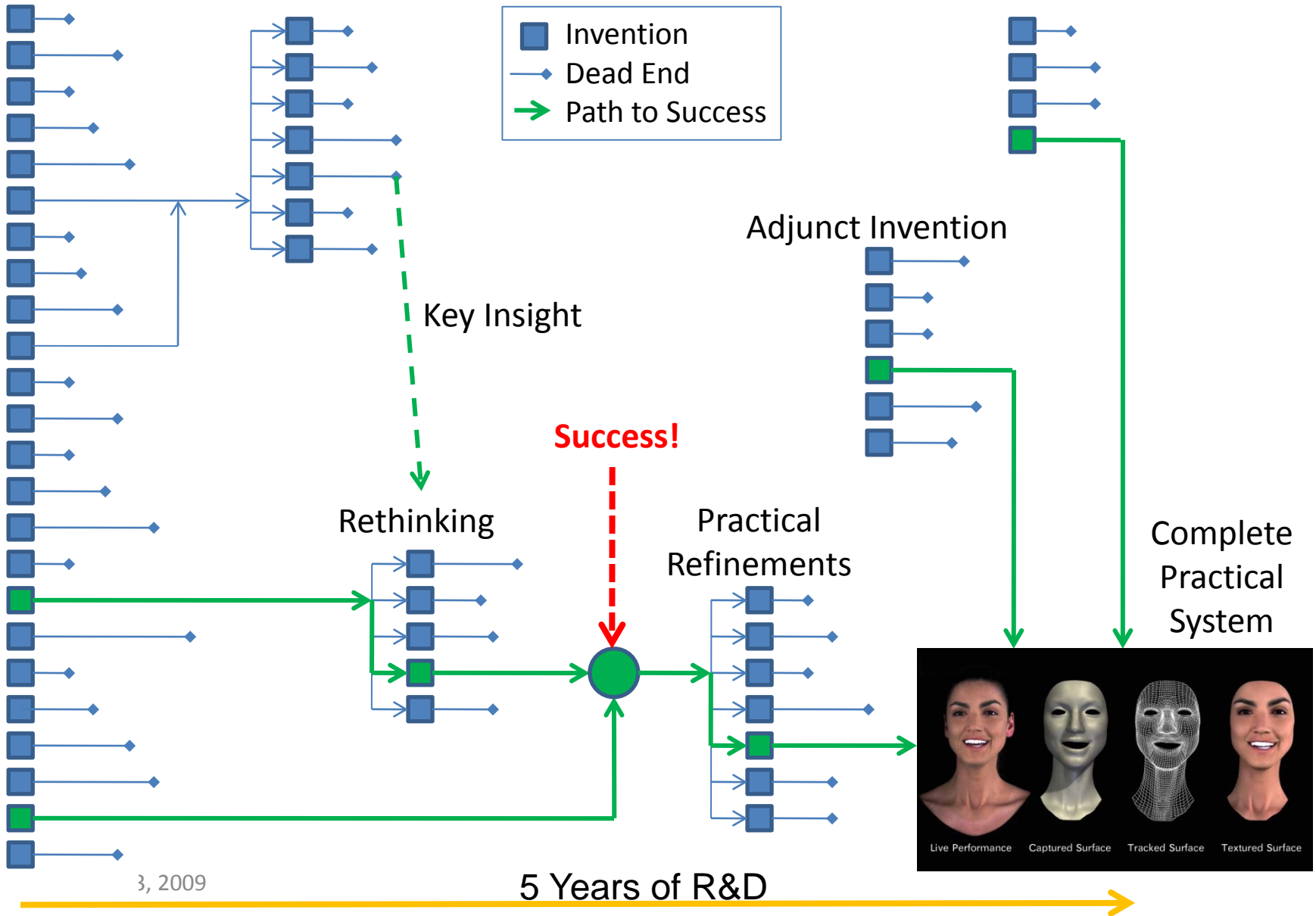


- Integrate Mova Contour into OnLive Game Service
 - Blur the boundaries of video games and motion pictures



Let's review the invention process.

The Mova Contour invention path



Why First-to-Invent matters

- Contour required about 100 inventions
 - Most were dead-ends
 - Some were dead-ends, but led to key insights
- Under First-to-Invent, dead-ends were not filed
 - Only 7 (deep) patents needed to be filed
 - Priority in the US was preserved
- Under First-to-File, dead-ends would have to be filed
 - 100 shallow patents would have been filed
 - Impractical for a startup
 - Had we chosen only the most promising inventions to file, we would have been wrong



Why changing to First-to-File is bad

- There are only about 250 interference hearings a year
 - Out of almost 500,000 patent filings (0.05%)
- First-to-file will result in *far* more patents filed
 - Patents will be shallower, and most will be unnecessary
 - Race-to-the-patent-office patents
 - Only large companies will have the resources
- US inventors already are harmonized internationally
 - We get the best of both worlds: FTI in the US, FTF outside
 - Because the US the most important market, that's all we need

Why apportionment* is silly

- Apportion what?
 - We saved 10s of millions of dollars in production cost
 - We enabled an entire industry worth billions
 - We replaced \$1,500 LED strobes with \$15 Fluorescent strobes
 - We reformulated \$5 Halloween makeup
 - We spent millions on dead-ends that led to a product
 - We enabled historic Academy Awards®
 - We had a credible analyst say Contour was a fake
 - ...etc.
- Invention is complex and multidimensional
 - There is no one dimension that works for all situations

*Apportionment is out of the Senate Bill for now



What problem is the PRA supposed to address?

Mitigating Patent “Trolls”

What is a patent troll?

“Trolls” are Non-Practicing Entities (NPEs) that sue Practicing Entities (PEs) with weak patents

- In 2006, RIM (Blackberry) infamously paid \$612M to a troll to avoid an injunction for patents that were later overturned
- Later in 2006, a Supreme Court ruling eliminated this type of injunction
- Still, the Blackberry injunction “scare” gave momentum to the PRA
- Big Tech’s IP counsel descended upon Washington, DC



How bad is the troll “problem”?

- Patent lawsuits steady for 15 years at ~1.5% of granted patents¹
 - ~230 patent lawsuits/month from 2000-2007²
- 8 or more lawsuits based on the same patent might be a troll:
 - 31 such lawsuits/mo. between 2000-2007³
 - 18.5/mo. were one very litigious individual: Ronald Katz
 - 5.5/mo. were pure PEs (e.g. Verizon and Monsanto)
 - 4.5/mo. were NPEs that were the inventors (e.g. universities, individuals)
 - 2/mo. were NPEs that acquired the patents (i.e. “trolls”)
- Is the PRA about mitigating **2 out of 230** patent lawsuits/month?
 - Of course not: **Big High Tech simply wants to weaken patents**

1. Federal Judicial Statistics, Table C-4.U.S. District Courts—Civil Cases Terminated, by Nature of Suit and Action 1993-2008.

2. Univ. of Houston Law Center Inst. for IP and Info. Law. http://www.patstats.org/Historical_Filings_PatentSuits_OtherSuits.rev3.doc

3. Allison, Lemley, Walker: *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 6/17/09. Note this paper erroneously concludes trolls are a significant percentage of litigation, but this is contradicted by corrected source data from the Stanford IP Litigation Clearinghouse, kindly provided by Lemley when I pointed out the discrepancies to him.

The PRA is Big Tech buying Washington

- The Congressional Research Service (CRS) PRA Reports have key errors
 - I've asked dozens of Senators, Representatives and staffers to correct them
 - All agree the following is factually false, and is material:
 - The CRS states First-to-File is constitutional, citing a paper that concludes the opposite¹
 - In fact, in the last 10 years NO scholarly paper concludes First-to-File is constitutional²
 - **No one will correct the error, so this constitutional error will become law**
- Big Tech's financial/backroom deals easily traced—and no one cares
 - \$10K/plate Big Tech fundraiser for one Senator, and he introduces 2009 PRA
 - The only papers advocating apportionment were works for hire by Big Tech
 - Co-author of the biased CRS reports was hired by Big Tech (IBM)
 - Cisco IP counsel caught impersonating a patent attorney advocating PRA
 - Cisco acknowledged they had authorized the impersonation—and they were sued
 - Despite this, Congress and the FTC still invited Cisco counsel to testify for PRA
 - The new Director of the Patent Office is from Big Tech (IBM)

1. CRS Reports: *Patent Report for 110th Congress*, 1/10/2008, footnote 82; *Patent Report for 111th Congress*, 4/9/09, footnote 86.

2. Morrison & Foerster law research 4/19/09 (available upon request). Of 9 scholarly papers published, none conclude FTF would be constitutional.

What needs reform? Pendency

- USPTO backlog (i.e. pendency) is the biggest reform issue
 - Years from filing to issuance for my last 5 patents:
 - 6.5, 5, 6.5, 10, 6 ... on average, 7 years
 - And ... I've had patents issue in 1.5 years
 - I've waited over 5 years for a first Office Action
- There is no way to predict pendency
 - It has huge implications for product planning
 - Should we file for near-term or long-term inventions?
 - Should we forgo foreign filings to avoid publication?
- How can you assess a grossly backlogged patent system?
 - **You can't: You risk destabilizing the trillions of dollars backed by it**

Why invention matters

- The US has always been an invention Mecca
 - US inventions have made lives better, fostered social progress
 - Many of you are alive today because of US inventions and patents
 - The backbone of an idea-based economy is inventions
 - The US economy is more dependent on inventions than ever
- Some things haven't changed since Franklin's day...
 - Inventors are still ridiculed for failure and robbed for success
- But some things have...
 - Most politicians utterly dismiss the value of invention and inventors
 - The PRA isn't just misguided...no one in DC even takes it seriously
 - I urge you to make your Senators and Representatives aware of it



Thank you.