2020

RESUME

DREAMWORKS ANIMATION
OUTREACH PROGRAM

LUCASFILM ltd
- BEST PRACTICES REVIEW COMMITTEE
- EXECUTIVE TRAINEE
- ILM CREATURE R & D ATTENDEE
- SKYWALKER RANCH ALUM

BZP PRO
- COFOUNDER
- SIGGRAPH & GDC BOOTHS
- 3 ACQUISITION NEGOTIATIONS

Adobe / Apple
ADOBE PRERELEASE TEAM FOR PHOTOSHOP ON THE IPAD PRO 2

Gensler
ARCHITECTURE FIRM RANKED #1 GLOBALLY

nbbj
ARCHITECTURE FIRM RANKED #2 GLOBALLY

NIKE DESIGN THESIS

EA SPORTS
LEAD RIGGING CENTRAL FOOTBALL

2K
BASKETBALL RIGGING

SONY
RIGGING PROTOTYPING
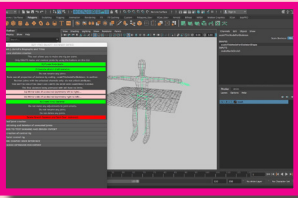
Disney
RIGGING PROTOTYPING

SUMMARY

AFTER WORKING AS AN INTERIOR ARCHITECT AT THE TWO LARGEST ARCHITECTURE FIRMS IN THE WORLD (GENSLER AND NBBJ), PARTICIPATING IN THE DREAMWORKS OUTREACH PROGRAM, HANDLING RIGGING DEVELOPMENT ON NBA 2K AT TAKE-TWO INTERACTIVE, GLOBAL RIGGING MEETING ATTENDEE AND LEAD RIGGING DEVELOPER ON CENTRAL FOOTBALL AT EA SPORTS, AND AT LUCASFILM, THE BEST PRACTICES REVIEW COMMITTEE HAND SELECTED BY FORMER CTO STAFF OF PETER JACKSON'S WETA DIGITAL (THE LORD OF THE RINGS), AS WELL AS AN EXECUTIVE TRAINEE AND SKYWALKER RANCH ALUM SHOWING STAR WARS FILM GAME CONVERGENCE RIGGING WORK TO GEORGE LUCAS DIRECTLY, I COFOUNDED AN ENTREPRENEURIAL VENTURE WHERE I AUTHORED A RIGGING TECHNOLOGY THAT HAS BEEN UNDER ACQUISITION REVIEW THREE TIMES WITH THREE SEPARATE FORTUNE 500 MULTI BILLION DOLLAR COMPANIES (1 OF THE COMPANIES WORTH OVER 120 BILLION); AND ADVISED BY ONE OF THE AFFILIATES OF ONE OF THE FOUNDERS OF INDUSTRIAL LIGHT & MAGIC TO NOT SELL THIS VENTURE IN ACQUISITION BELOW 20 MILLION DOLLARS. THIS TECHNOLOGY WAS RECEIVED BY 250 UNIVERSITIES ON 6 CONTINENTS, OUT PENETRATING FACEBOOK LLC IN UNIVERSITY ACCEPTANCE PRE "SERIES A." IT ALSO GRACED THE COVER OF A WORLDWIDE MAGAZINE AND HAD ITS OWN BOOTHS AT SIGGRAPH AND GDC. MOST RECENTLY I HAVE BEEN CONSULTING WITH MY PARTNER STUDIO IN LOS ANGELES ON MOTION CAPTURE AND RIGGING DEVELOPMENT FOR SONY PICTURES AS WELL AS WALT DISNEY FEATURE ANIMATION. DUE TO ILLUSTRATION ABILITY, I AM UNDER NON DISCLOSURE WITH ADOBE, INC, TESTING OUT THE ADOBE ECOSYSTEM FOR APPLE'S IPAD. LASTLY, I AM ON THE GROUND STAGES OF DEVELOPING ADDITIONAL TECHNICAL ANIMATION IP. MY UNDERGRADUATE DEGREE AT THE OHIO STATE UNIVERSITY WAS IN INDUSTRIAL DESIGN: WHERE MY THESIS WAS CONCENTRATED ON REBRANDING NIKE RETAIL; AND MY MASTERS DEGREE AT THE OHIO STATE UNIVERSITY WAS FOCUSED IN TECHNICAL ANIMATION, WHERE I AUTOMATED DINOSAUR RIGGING SETUPS IN PYTHON FOR A "WALKING WITH DINOSAURS" PIECE WHICH AIRED ON THE DISCOVERY CHANNEL.
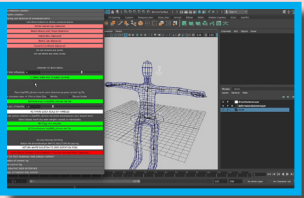
SMART SKINNER RIGGING PIPELINE SOFTWARE AUTHOR:

- WROTE ENTIRE TECHNOLOGY BY MYSELF IN MEL AND PYTHON
- CUSTOMIZABLE UPON REQUEST
- ADVISED BY ILM COFOUNDER AFFILIATE TO NOT SELL BELOW $20 MILLION
- 3 ACQUISITION REVIEWS WITH 3 SEPARATE FORTUNE 100 COMPANIES
- RAISED INVESTMENT MONEY FROM BANKING ALUM OF HARVARD AND YALE
- FEATURED ON THE COVER OF A WORLDWIDE MAGAZINE
- TECH BURNED TO WORLDWIDE MAGAZINE'S INCLUDED ACCOMPANYING DVD
- 250 UNIVERSITIES ON 6 CONTINENTS RECEIVED PRODUCT
- MATCH UP "NUMBER" TO FUNCTIONAL BUTTON ON "GUI"

GUI

6. GENERATE ILM LEVEL CONTROL RIG INSTANTLY

7. KEYFRAME CONTROL RIG WITH GUI BUTTONS

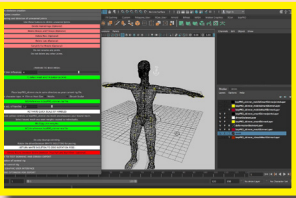8. OPTIMIZE CHARACTER FOR IN GAME USE WITH GUI
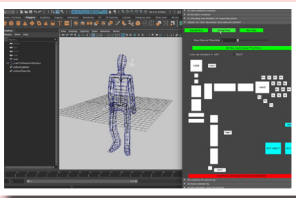
2. GENERATE AND ALIGN SKELETON WITH GUI

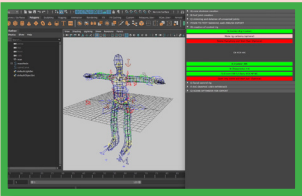3. ATTACH MODEL TO SKELETON AND PICK THE NUMBER OF SKIN INFLUENCES WITH GUI

4. REFERENCE IN ZBRUSH, NEXT - GEN, OR MOBILE PROXY WITH CORRECT SKIN WEIGHTS THAT ALIGNS WITH MODEL. TRANSFER WEIGHTS THEN UNREFERENCE. THIS HAPPENS ALL WITHIN GUI.
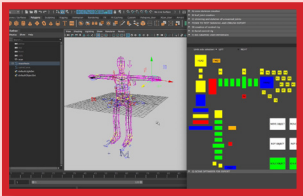
5. TEST SKIN WEIGHTING WITH GUI POSER LIBRARY

EITHER 6.

9. OVER 80 HOURS SAVED IN 15 MINUTES
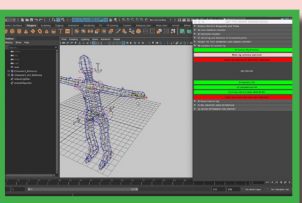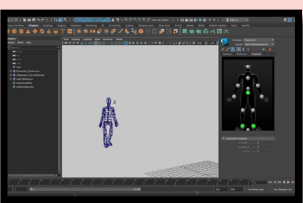
1. START WITH YOUR MODEL
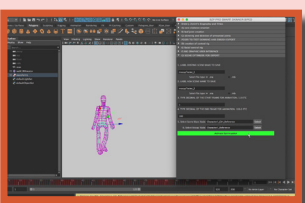
6. GENERATE MOCAP HIK RIG WITH GUI
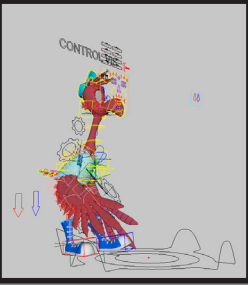
7. APPLY MOCAP DATA TO HIK RIG IN MAYA
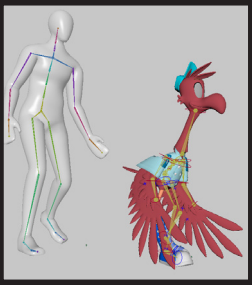
8. OPTIMIZE CHARACTER FOR IN GAME USE WITH GUI

INVERSE HIK DESIGN FOR DISNEY PROTOTYPING

THEIR WALT DISNEY ANIMATION RIG SETUP

WALT DISNEY ANIMATION RIG SETUP BEING DRIVEN BY MY HIK

Disney

RIGGING PROTOTYPING USING MY TECHNOLOGY

COMPLETED CHARACTER: 80 HOURS SAVED

GUARDIANS OF THE GALAXY VOL. 2

COMPLETED CHARACTER: 80 HOURS SAVED

Vampirina

SONY

Disney
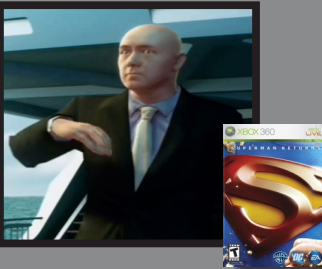
PREVIOUS MODELING EXPERIENCE
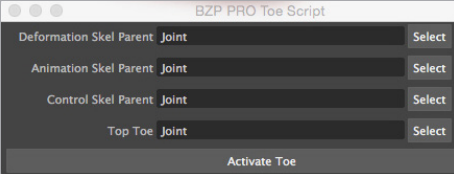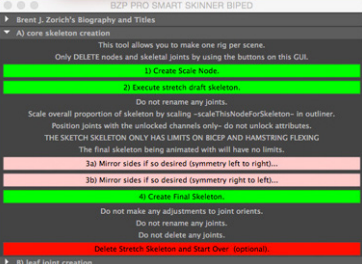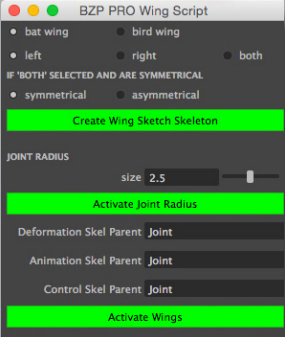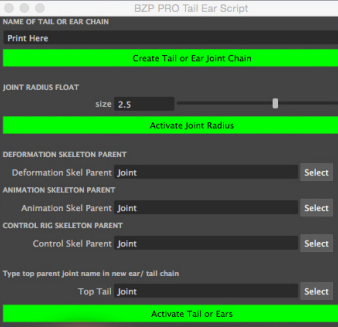
Discovery CHANNEL

LEX LUTHOR WARDROBE

BZP PRO SMART SKINNER (2139 NODES)

BZP PRO TOE TOOL (2443 NODES)

BZP PRO TAIL TOOL (2562 NODES)

BZP PRO WING TOOL (2745 NODES)

- 2745 NODES (TIMES 2 MINUTES PER NODE)

- 5490 MINUTES (90 HOURS)

COMPLETED IN 5 MINUTES
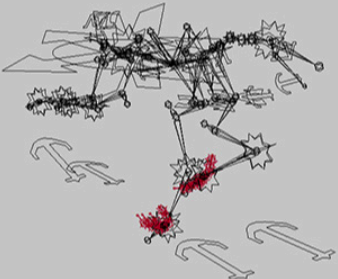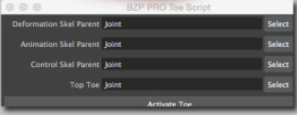
AT THE LEVEL OF ILM
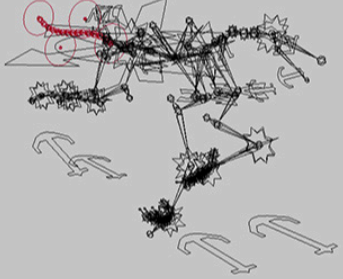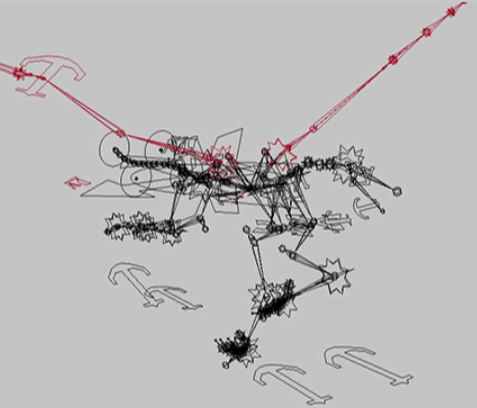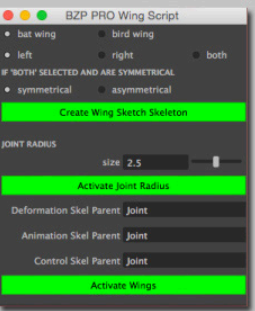
BASE RIG

TOE MODULAR
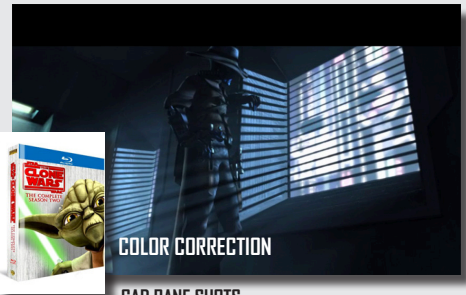
TAIL MODULAR

WING MODULAR

COLOR CORRECTION

CAD BANE SHOTS

COLOR CORRECTION

OBI-WAN KENOBI SHOTS
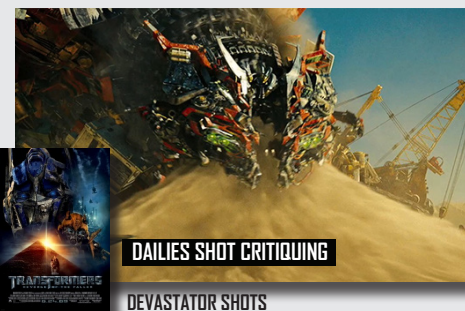
SHOT EDITING MONTHLIES

DUMBLEDORE SHOTS

SHOT EDITING MONTHLIES

HARRY POTTER SHOTS

DAILIES SHOT CRITIQUING

DEVASTATOR SHOTS

DAILIES SHOT CRITIQUING

OPTIMUS PRIME SHOTS

RIG PROTOTYPING

RIGGING
(SPIELBERG)

ALL BODYTYPES

ULTIMATE EVIL
THE COVER OF THE FORCE UNLEASHED

FILM GAME CONVERGENCE WORK
COMBINING JANGO FETT WITH
AHSOKA TANO ON THE XBOX
SHOWN TO GEORGE LUCAS

DRAGON RIGGING

ALL BODYTYPES

R AND D

R AND D

ALL BODYTYPES

ALL BODYTYPES

JABBA THE HUTT

BOBA FETT

BOBA FETT

BOBA FETT
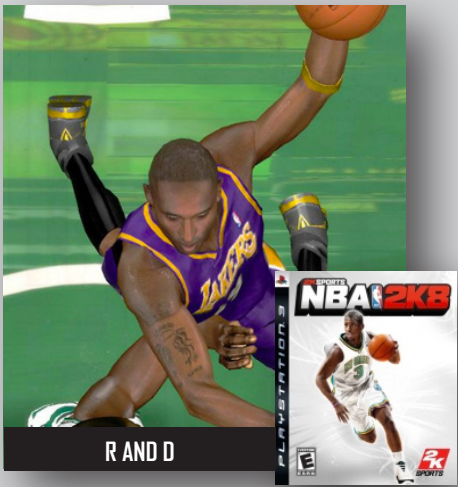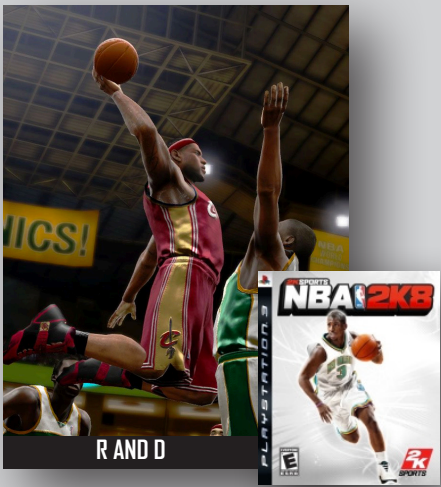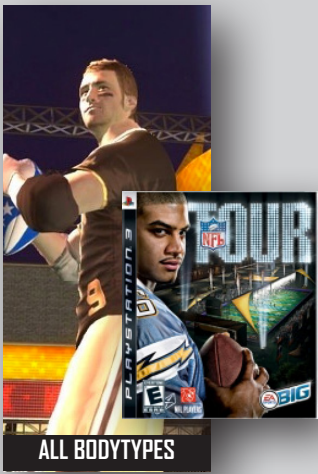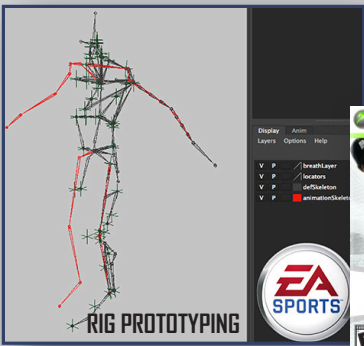
BOBA FETT

FIXED NON ACCURATE ARM PROPORTIONS:

ENTIRE ANIMATION LIBRARY RETARGETED TO MY RIG SETUP

MADDEN NFL 08

NON ACCURATE

MADDEN NFL 09

ACCURATE

MY TECHNOLOGY IN THE CLASSROOM
(250 UNIVERSITIES ON 6 CONTINENTS RECEIVED PRODUCT)
NOTE: SOPHOMORES IN COLLEGE ARE ABLE TO RIG CHARACTERS AT THE LEVEL OF ILM DUE TO MY TECHNOLOGY.
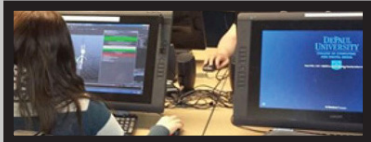
BZP PRO

ENDORSEMENT FROM THE SIGGRAPH CHAIR REFERRING TO MY TECH AS "MINDBLOWING"

MTSU ACM SIGGRAPH
@MTSUACMSIGGRAPH
Yesterday was mind blowing! Thanks to Brent Zorich for showing us the ropes!

BZP PRO
BIPED

12:12 PM · 10/1/15 · Twitter Web Client

PRINCIPAL TECHNICAL ART FILM GAME CONVERGENCE

- SMART SKINNER SOFTWARE CONTROL RIG TECHNICAL INFLUENCES
- 80 HOURS OF LABOR COMPLETED IN 20 SECONDS (14K LINES OF CODE)
- MATCH HIGHLIGHTED COMPANY TO CIRCLED BODY PART

BIPED
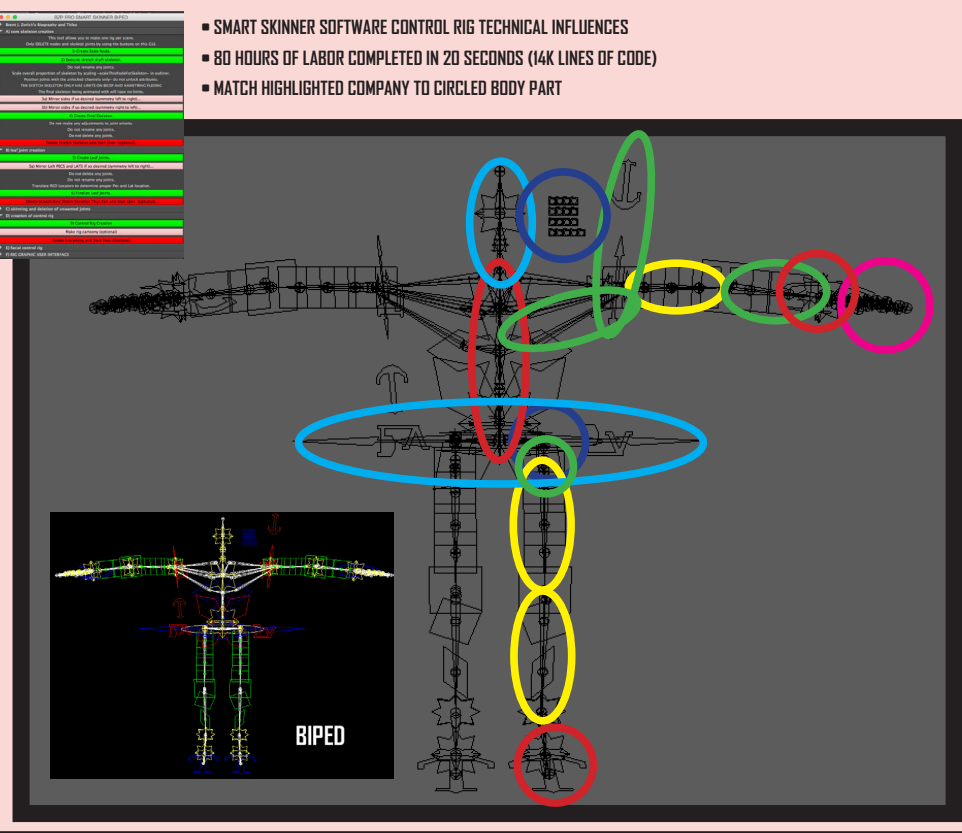
LUCASFILM Ltd

BI-MONTHLY BEST PRACTICES REVIEW COMMITTEE
SELECTED BY FORMER CTO OF PETER JACKSON'S WETA DIGITAL

ILM BLOCK PARTY
JANGO FETT

2K SPORTS

LUCASFILM
ANIMATION

LUCASARTS

EA GAMES

EA SPORTS

CHARACTERS EXPLORED AT LUCAS ANIMATION
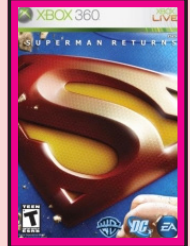
TITLES EXPLORED AS EA GLOBAL RIGGING ATTENDEE

THREE WORLDWIDE MAGAZINES

3D Artist
SURFACE SHADERS

workspace Interview
Brent Zorich

BIOGRAPHY FEATURED IN A WORLDWIDE MAGAZINE

There are few people in the 3D industry who can claim to have worked on bestselling EA games titles one year and hung out at Skywalker Ranch with Lucasfilm the next, but Brent Zorich is a man who can.

3D Artist
BECOME A MAYA GENIUS

BZP Pro Smart Skinner
30-DAY TRIAL
3+ HOURS OF VIDEO TUITION 9 GB OF FREE CONTENT

MY AUTHORED TECHNOLOGY INCLUDED ON WORLDWIDE MAGAZINE DISC

BZP Pro Smart Skinner 30-day trial
Make rigging easy with this

Created by one of the premiere riggers in the videogame and film industry, Brent Zorich, BZP Pro's Smart Skinner promises to rig and skin biped and quadruped characters in less than one hour.

3D Artist
3DS MAX MASTERCLASS
Maya rigging
ACHIEVE BETTER LIGHTING

Auto rigging with Smart Skinner

Welcome

TECHNOLOGY I'VE WRITTEN FEATURED ON THE COVER OF WORLDWIDE MAGAZINE

Maya rigging
Set up your characters easily and efficiently using Smart Skinner

Brent J. Zorich
Brent is a clever chap, having written his own Smart Skinner for Maya. On p76 he reveals how using the Smart Skinner for auto-rigging can save you hours of time.

PRINCIPAL TECHNICAL ARTIST SKILLSET I CAN ADD TO YOUR PROJECT

- COLLEGIATE GUEST LECTURING (CURRENTLY OVER 40 UNIVERSITIES)
- RIGGING PIPELINE AND WORKFLOW
- COLOR CORRECTION DESIGN
- MEL AND PYTHON ENGINEERING TOOL DEVELOPMENT
- ILM LEVEL AND WORLDWIDE MAGAZINE PUBLISHED LEVEL AUTORIGGING TOOL DESIGN
- MOTION CAPTURE RIGGING SETUP
- MODULAR RIGGING ENGINEERING
- VENTURE CAPITAL TECHNOLOGY PITCHING
- MULTIPLE FORTUNE 100 ACQUISITION PRESENTATIONS EXPERIENCE
- STARTUP LEVEL CHIEF CREATIVE OFFICER TASKS
- CAN DESIGN A "FREEMIUM" BUSINESS MODEL WHERE THE TECHNOLOGY I AUTHOR PENETRATES UNIVERSITIES AT A RATE FASTER THAN FACEBOOK LLC PRE "SERIES A" INVESTMENT
- CAN CONCEPTUALIZE AND DESIGN DIGITAL BUILDING CONCEPTS FOR GAME ENVIRONMENTS AT THE LEVEL OF THE GENSLER ARCHITECTURAL DESIGN FIRM RANKED NUMBER 1 IN THE WORLD: GENSLER

SONY RIGGING PROTOTYPING:
80 HOURS COMPLETED IN 15 MINUTES

SONY
make.believe

paysa

Principal Technical Artist Salaries
Data based on fewer than 20 profiles

How much does a Principal Technical Artist make?

A Principal Technical Artist earns an average of $223,863, ranging from $172,064 at the 25th percentile to $263,560 at the 75th percentile, with top earners (the top 10%) earning more than $319,313. Compensation is derived from fewer than 20 profiles, including base salary, equity and bonus.

$223,863
$172,064
$263,560
$319,313

TOTAL COMPENSATION
25TH PERCENTILE $172,064

AVERAGE $223,863

BREAK DOWN: AVERAGE
BASE $223,863

75TH PERCENTILE $263,560

PRINCIPAL TECHNICAL ARTIST RANGE:
$180K - $320K

BONUS PAGES

workspace ³ᴰ Interview

Inside guide to industry news, studios, expert opinion & education

workspace
To advertise in workspace™ please contact
Cassie Gilbert on 01202 586421 or
cassandra.gilbert@imagine-publishing.co.uk

Industry insider
Brent Zorich
Character technical director, Lucasfilm

Each issue, **3D Artist** finds out how the top people in the 3D industry got their jobs and what you need to know to get a foot in the door

About the insider

Job Character technical director/lead rigger

Education Master's of Fine Art at ACCAD at The Ohio State University

Company website www.lucasfilm.com

Personal website www.brentzorich.com

Biography Prior to immersing myself in the animation industry, I had worked for the top two architectural firms in the world. I pride myself on trying to be on a team that does the best work, no matter what project. I push technology as far as I can on whatever team I am affiliated with

There are few people in the 3D industry who can claim to have worked on bestselling EA games titles one year and hung out at Skywalker Ranch with Lucasfilm the next, but Brent Zorich is a man who can. Zorich was part of a steering committee meeting for Lucasfilm on film/ game convergence. In addition, he was lead rigger on *The Force Unleashed: Ultimate Sith Edition*. On this title, he was working in the LucasArts division, looking at pipeline and storage optimisation and lead rigging on such characters as Jabba the Hutt and Boba Fett. Zorich was also dealing with convergence on all divisions from Lucasfilm to LucasArts, Lucasfilm Animation, Industrial Light & Magic and Lucasfilm Animation Singapore.

3D Artist: *What did this role of working on convergence mean in practice?*
Brent Zorich: As a part of the senior staff, I wrote proposals to help set the direction for Lucasfilm Ltd as a company. In Singapore, not only was I part of research and development prior to my promotion and relocation to the home office in San Francisco, I also worked on colour correction and compositing for *Star Wars: The Clone Wars.*

3DA: *How did you get this job?*
BZ: I applied online and was hired after Lucasfilm Animation Singapore saw the great work I did on EA Sports' football franchise.

3DA: *What kind of course did you do at university, or training did you do?*
BZ: At ACCAD at the Ohio State University, I did extensive research on the following topics: VRML; procedural animation; Pixar's RenderMan; motion capture. I also researched Wayfinding in real-time simulation (the subject analysed and improved upon was the game *Spider-Man The Movie*).
First of all, the Wayfinding tool was created out of VRML and theories worked on with an eminent scholar. I also studied the enhancement of realism in computer animation through the incorporation of biomechanics and fatigue (the subject 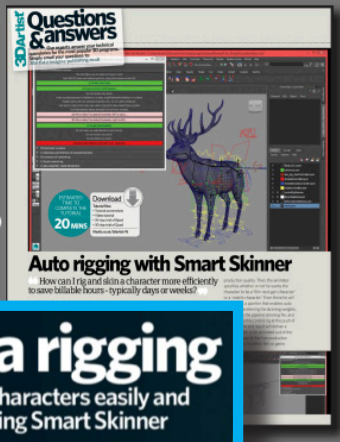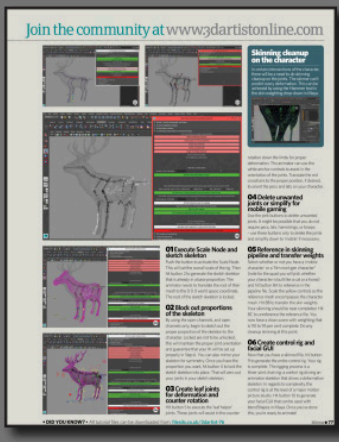analysed was *Shrek*). Next, I looked at rigging of prehistoric animals with my project-based thesis *Mystery Dinosaur* work. Finally, I looked at creatures evolving based on the ecosystem around them. Classes were also taken in digital still-life lighting and theatre lighting.

3DA: *For today's generation of students, what is the kind of educational grounding they should be looking to undertake to get a first job as a character animator, or is the entry level a less specific role?*
BZ: This is the way that I do it. I have a television next to my monitor. I watch *Harry Potter and the Prisoner of Azkaban* (the Buckbeak scene). If I am embarrassed to look at what is on my monitor then I'm not done, plain and simple. I am my own toughest critic and I have zero tolerance.

3DA: *In your role as associate technical artist or lead rigger at EA Sports, what kind of work did that entail?*
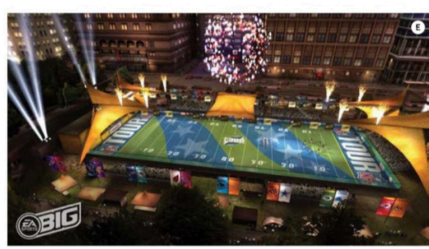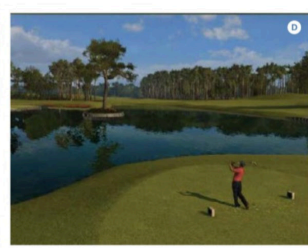
BZ: I needed a complete understanding of physiology of humans built for strength and speed. Because I was an athletic trainer who trained football players, it came to me naturally. I know how a football player flexes, I know how they run and sprint and I know how they get prepared for collision. Often, because I have a football player's body, I would go into the washroom at EA where there was a mirror, take off my shirt and flex both my traps and my arms to see the proper deformation. This is how I got into character and what made it so easy is that the character I was getting into was myself!

3DA: *Is there much of a culture or professional working practice difference between working for someone like EA and a company like Lucasfilm?*
BZ: You are who your team is. Lucasfilm, as a company, is a natural fit for me. We both have zero tolerance when it comes to the quality of our work. We push the absolute limitation of technology in every way, shape and form. Because we are not on yearly titles, we have the ability to push back a launch date to guarantee that we are doing our best to break new ground.

3DA: *What software packages and tools have you used for rigging and animation?*
BZ: I use Maya, the proprietary software to Industrial Light & Magic, and After Effects and HyperCam for documentation.

3DA: *Do you think there is a shortage of skilled digital artists doing animation and did you find it difficult getting into the industry?*

BZ: My best advice to any student is try to do an internship in a studio. Do not rush to get out of school; stay in and develop your craft. Finally, do the Buckbeak test as I mentioned above.

3DA: *What are the key skills required to work as a character animator or character rigger?*
BZ: Observation, patience and the goal to push technology. Everything you do, imagine you have to present it to George Lucas. Then you will work harder and will expect the absolute best from yourself and your team.

3DA: *If there was one feature missing from current software apps that you would like to see implemented to help with any aspect of CG animation, what would it be?*
BZ: I saw a demo from a company where you can actually draw arcs of motion on a Wacom tablet and the object will have an animation path.

3DA: *Professionally, what's the most satisfying project you've worked on and why?*
BZ: Seeing my name at the end credits of *Star Wars: The Force Unleashed, Ultimate Sith Edition* makes me incredibly proud. I saw the first *Star Wars* film when I was three in 1977. It motivated my whole career. To see my name in a *Star Wars* product gave me a sense of satisfaction.

3DA: *What would be your dream project to work on?*
BZ: One that continues to push film/game convergence on every level. The ultimate goal for me would be to have an engine that supports a controlled character and the user cannot distinguish between real-time and render.

Portfolio highlights

Zorich has worked on a host of videogames over the years. Feast on these...

2008-9 *Star Wars: The Force Unleashed, Ultimate Sith Edition*
2008 *Indiana Jones and the Staff of Kings*
2008 *Star Wars: The Clone Wars*
2008 EA Sports MMA
2007-8 NFL Tour
2007-8 NFL Head Coach 09
2007-8 NCAA Football 09
2007-8 Madden NFL 09

2007 Tiger Woods PGA Tour 09
2007 Madden NFL 08
2007 NCAA Football 08
2007 College Hoops 2K8
2007 NBA 2K8
2006 College Hoops 2K7
2005 Superman Returns: The Videogame
2003-5 *The Mystery Dinosaur for The Discovery Channel*
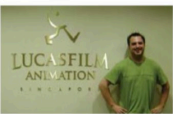
- Ⓐ Character rigging on SW Force Unleashed
- Ⓑ Brent at Lucasfilm Animation

- Ⓒ Tiger Woods PGA Tour 09
- Ⓓ Character work on NFL Tour
- Ⓔ Indianna Jones and the Staff of Kings

- Ⓕ Artwork from SW: TFU Ultimate Sith edition
- Ⓖ College Hoops 2K7
- Ⓗ The Ultimate Edition in full

MODO 401 • MAYA • 3DS MAX • LIGHTWAVE • VUE • CINEMA 4D • POSER

3DArtist
MASTER THE ART OF SURFACE SHADERS
Discover the techniques to make textures shine

GET THE RIGHT SOFTWARE
All the major apps used for jobs in the 3D workplace

WINTER LANDSCAPE | HEAVY WEAPONS

ANIMATE FIGHT MOVES
5GB OF FREE ASSETS EQUIVALENT TO 8 DISCS

3DArtist 76
Practical inspiration for the 3D com

CREATE ZBRUSH HAIR IN 17 STEPS
Explore an artistic real-time workflow

3DS MAX MASTERCLASS
• Perfect characters • Refine your technique
• Achieve incredible results

Maya rigging
Set up your characters easily and efficiently using Smart Skinner

ACHIEVE BETTER LIGHTING
The experts come together to bring you 24 ways to improve

NUKE STUDIO PAGE 80

PLUS
• V-Ray 3.0 for Maya + Substance Painter 1.0
• Win a copy of Clone 4
• Simulate a tornado

Model an FPS weapon
Generate pro game assets

8 DISCS' WORTH OF CONTENT
• MODELS WORTH $150
• 70% OFF UNVMRELLA FOR 3DS MAX AND MAYA
• 25 3DTOTAL TEXTURES
• 3 PANORAMIC HDRIS

Sculpt a sci-fi soldier
Learn all you need to know about the ZBrush to Photoshop pipeline with our step-by-step guide

---

3DArtist
Imagine Publishing Ltd

Welcome
to the magazine and soo pages
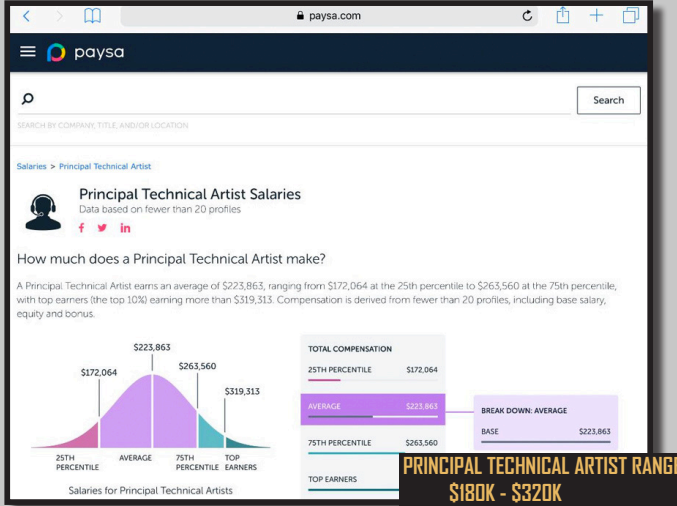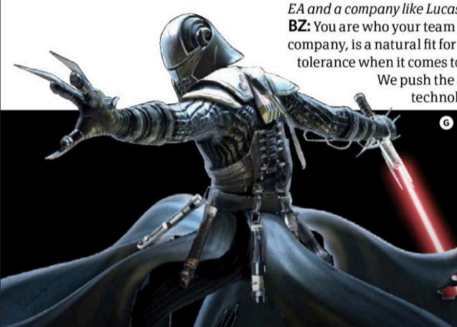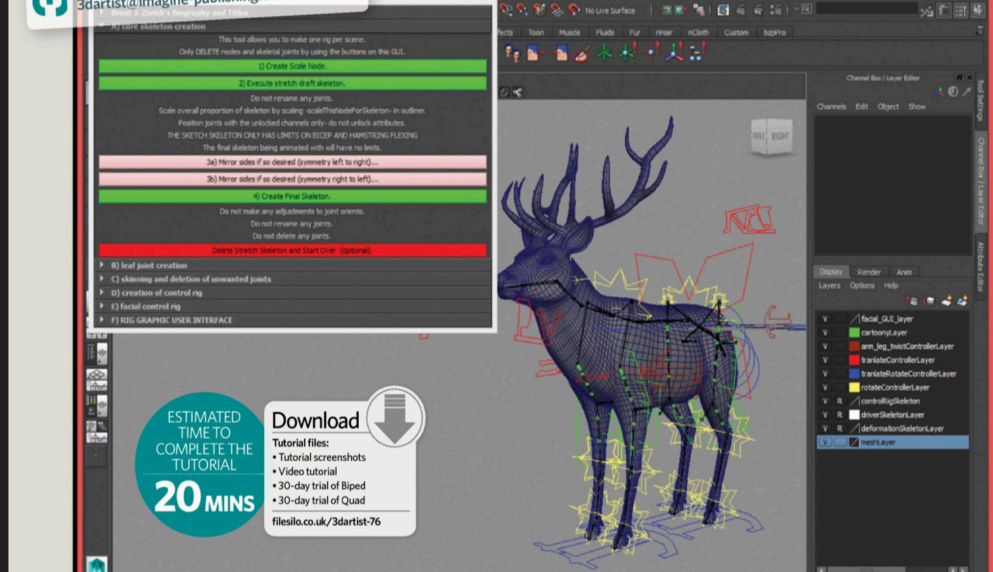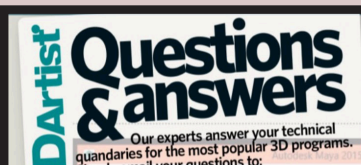
This issue's team of expert artists:

Brent J Zorich
Brent is a clever chap, having written his own Smart Skinner for Maya. On p76 he reveals how using the Smart Skinner for auto-rigging can save you hours of time.

Sign up, share your art and chat to other artists at
www.3dartistonline.com

Join the ...artistonline.com

Questions & answers

Our experts answer your technical quandaries for the most popular 3D programs. Simply email your questions to:
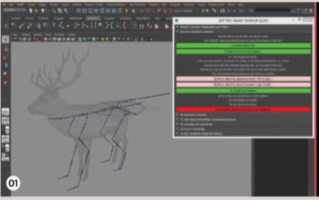3dartist@imagine-publishing.co.uk

Auto rigging with Smart Skinner

❝ How can I rig and skin a character more efficiently to save billable hours - typically days or weeks? ❞

This tutorial is a breakdown of how the Smart Skinner is used in the production environment to save days, if not weeks, on the rigging and skinning process of a character. This step-by-step process goes over the basics of the software and will rig and skin a character of a deer in a matter of minutes. When I worked in production for the biggest companies on the planet, it would not be uncommon that from a billable standpoint, a character director might give me two weeks to start, execute and complete a rigged character. This caused headaches in the production setting as often I was repeating the same task on different proportions without an effective way of setting up those hours. At Lucasfilm, I was looking through the assets of the main characters such as

Ahsoka, Jango Fett and General Grievous extracting their key attributes and incorporating them into a super rig that could be benchmarked for the company. At EA Sports in the late 2000s I designed the rigging system used for Central Football for titles such as *Madden NFL* and *NCAA*. This Smart Skinner software I have written is a culmination of techniques from these top companies incorporated into a tool that is affordable and easy to use. The character will be completed through a process of firstly executing a sketch skeleton to obtain proper position. Then, the character will be blocked out within the mesh to ensure the joint positions are in the correct spot. The Smart Skinner will create the leaf helper and counter twist joints to assist with the proper deformation required to make the rig

production quality. Then, the animator specifies whether or not he wants the character to be a 'film next-gen character' or a 'mobile character'. From there he will reference in a pipeline that enables auto skinning, transferring the skinning weights, unreference the pipeline skinning file, and making an entire control rig at the push of a button. The end result will deliver a character able to be animated out of the box that is top-of-the-line production quality ready for either film or game.

ESTIMATED TIME TO COMPLETE THE TUTORIAL
20 MINS

Download
Tutorial files:
• Tutorial screenshots
• Video tutorial
• 30-day trial of Biped
• 30-day trial of Quad
filesilo.co.uk/3dartist-76

Skinning cleanup on the character

In certain intersections of the character, there will be a need to do skinning cleanup on the joints. The skinner can't predict every deformation. This can be achieved by using the Hammer tool in the skin weighting drop-down in Maya.
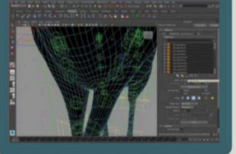
rotation down the limbs for proper deformation. The animator can use the white anchor controls to assist in the orientation of the joints. Translate the red crosshairs to the proper position, if desired, to orient the pecs and lats on your character.

01 Execute Scale Node and sketch skeleton
Push the button to activate the Scale Node. This will set the overall scale of the rig. Then hit button 2 to generate the sketch skeleton that is already in a base proportion. The animator needs to translate the root of their mesh to the 0 0 0 world space coordinate. The root of the sketch skeleton is locked.

02 Block out proportions of the skeleton
By using the open channels, and open channels only, begin to sketch out the proper proportion of the skeleton to the character. Locked and not to be unlocked, this will maintain the proper joint orientation and guarantee that your IK will be set up properly in Step 6. You can also mirror your skeleton for symmetry. Once you have the proportion you want, hit button 4 to lock the sketch skeleton into place. That will zero out your joints in your sketch skeleton.

03 Create leaf joints for deformation and counter rotation
Hit button 5 to execute the 'leaf helper' joints. These joints will assist in the counter

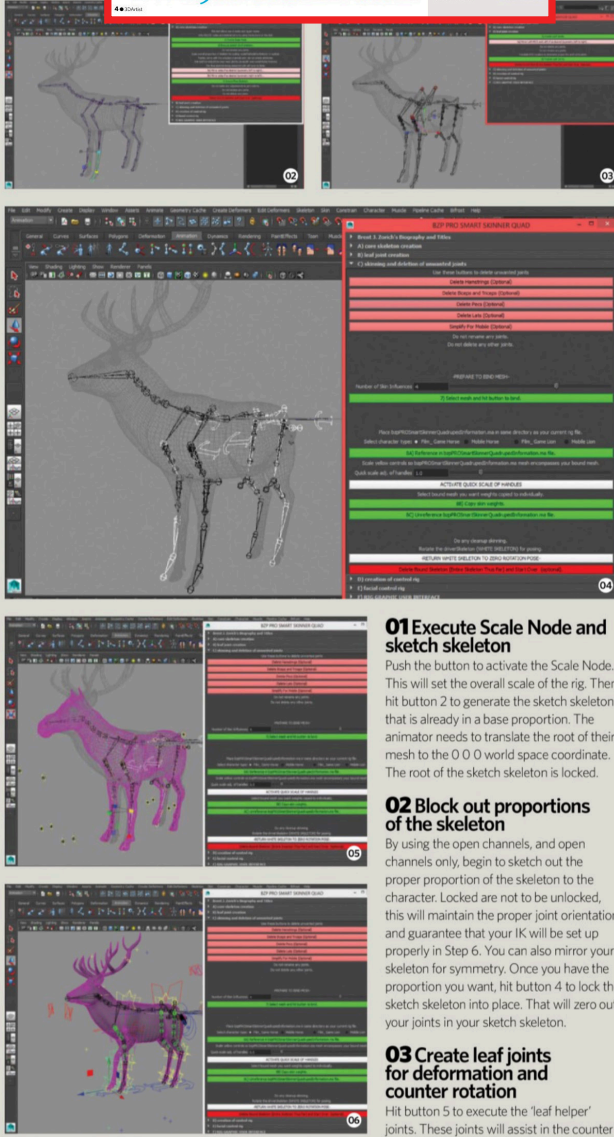### 04 Delete unwanted joints or simplify for mobile gaming
Use the pink buttons to delete unwanted joints. It might be possible that you do not require pecs, lats, hamstrings, or biceps – use these buttons only to delete the joints and simplify down to 'mobile' if necessary.

05 Reference in skinning pipeline and transfer weights
Select whether or not you have a 'mobile character' or a 'film next-gen character' (note for the quad you will pick whether your character is built like a cat or a horse) and hit button 8A to reference in the pipeline file. Scale the yellow controls so the reference mesh encompasses the character mesh. Hit 8B to transfer the skin weights. Your skinning should be near completion. Hit 8C to unreference the reference file. You now have a clean scene with weighting that is 90 to 95 per cent complete. Do any cleanup skinning at this point.

06 Create control rig and facial GUI
Now that you have a skinned file, hit button 9 to generate the entire control rig. Your rig is complete. The rigging process is a three-joint chain rig: a control rig driving an animation skeleton that drives a deformation skeleton. In regards to complexity, the control rig is at the level of a major motion picture studio. Hit button 10 to generate your facial GUI that can be used with blendShapes in Maya. Once you've done this, you're ready to animate!

• **DID YOU KNOW?** • All tutorial files can be downloaded from: filesilo.co.uk/3dartist-76

Row 1

Ohio State University	Ohio State University	Reebok	Nike	nbbj — ARCHITECTURE FIRM RANKED #2 WORLDWIDE — REPUBLIC OF CHINA	Gensler — ARCHITECTURE FIRM RANKED #1 WORLDWIDE — VW	Gensler — ARCHITECTURE FIRM RANKED #1 WORLDWIDE — adidas	Gensler — ARCHITECTURE FIRM RANKED #1 WORLDWIDE — LINCOLN MERCURY	Discovery — The Mystery Dinosaur	DreamWorks — OUTREACH PROGRAM — 20 WEEK TRAINING SESSION WITH SUPERVISORS ON SHREK, MADAGASCAR, SHARK TALE & FINDING NEMO	Superman Returns
INDUSTRIAL DESIGN	THESIS: AUTORIGGING DINOSAURS IN PYTHON	PRODUCT DESIGN & PITCH TO REEBOK CEO	BRAND & ARCHITECTURE INDUSTRIAL DES THESIS							
1998	2011	1997	1998	1998-1999	1999-2001	1999-2001	1999-2001	2003-2005	2005	2005
BACHELOR OF SCIENCE	MASTERS DEGREE			ARCHITECTURE	ARCHITECTURE	ARCHITECTURE	ARCHITECTURE	RIGGING	PARTICIPANT	RIGGING

Row 2

NBA 2K8	College Hoops 2K8	College Hoops 2K7	EA SPORTS — RIGGING GLOBAL PRACTICES MEETINGS BETWEEN EAC - EA LONDON - EA ORLANDO	EA SPORTS — REDESIGNED RIGGING SYSTEM ON ELECTRONIC ARTS TOP TITLE, CENTRAL FOOTBALL, TO BE BIOMECHANICALLY CORRECT	Tiger Woods PGA Tour 09	NFL Tour	NFL Head Coach 09	Madden NFL 08	EA Sports MMA	NCAA Football 09
2006	2006	2006	2007-2008	2007-2008	2007	2007	2008	2007	2008	2008
RIGGING	RIGGING	RIGGING	BI-MONTHLY ATTENDEE	RIGGING MILESTONE	RIGGING PROTOTYPING	LEAD RIGGING	LEAD RIGGING	RIGGING	RIGGING PROTOTYPING	LEAD RIGGING

Row 3

NCAA Football 08	Madden 09	Lucasfilm Ltd — RESEARCH AND DEVELOPMENT SHOWN TO GEORGE LUCAS	Lucasfilm Ltd — INDUSTRIAL LIGHT & MAGIC — CREATURE R & D	Lucasfilm Ltd — SKYWALKER Ranch	Lucasfilm Ltd — BEST PRACTICES REVIEW COMMITTEE (1 OF 10 MEMBERS) SELECTED BY FORMER CTO OF PETER JACKSON'S WETA DIGITAL	Lucasfilm Ltd — EXECUTIVE TRAINING — Engaged Leadership	Star Wars The Force Unleashed	Star Wars The Force Unleashed II	Indiana Jones	The Clone Wars
2007	2008	2008	2008-2009	2008-2009	2008-2009	2008	2008-2009	2009	2008	2008
RIGGING	LEAD RIGGING	FILM GAME CONVERGENCE	WEEKLY ATTENDEE	RESEARCHER	BI-MONTHLY ATTENDEE	RECIPIENT	LEAD RIGGING	RIGGING R & D	RIGGING R & D — SPIELBERG PROJECT	COLOR CORRECTION

Row 4

Harry Potter Half-Blood Prince	Transformers	Lucasfilm Ltd — INDUSTRIAL LIGHT & MAGIC — "BLOCK PARTY 1" RIGGING SOFTWARE	Lucasfilm Ltd — GENERAL GRIEVOUS — ANAKIN SKYWALKER — AHSOKA TANO — JANGO FETT — KIT FISTO	Lucasfilm Ltd — THE FORCE UNLEASHED — JABBA THE HUTT — BOBA FETT — ULTIMATE EVIL (THE COVER CHARACTER)	SONY PICTURES — GUARDIANS OF THE GALAXY VOL. 2 — RIGGING PROTOTYPING	BZP PRO — ACM SIGGRAPH — GDC	BZP PRO — ACQUISITION — 3 ACQUISITION ATTEMPTS (1 OF THE COMPANIES WORTH OVER 120 BILLION)	BZP PRO — RIGGING SOFTWARE — MOTION CAPTURE — FBX SCENE OPTIMIZER — POSE SPACE LIBRARY — PIPELINE & WORKFLOW — MODULAR RIGGING	BZP PRO — PENETRATION — 250 UNIVERSITIES ON 6 CONTINENTS RECEIVED PRODUCT	BZP PRO — rev ventures — HARVARD BUSINESS SCHOOL ANGELS
2008	2009	2008-2009	2008-2009	2008-2009	2017	2011-CURRENT	2011-CURRENT	2011-CURRENT	2011-CURRENT	2011-CURRENT
SHOT EDITING MONTHLIES	DAILIES SHOT CRITIQUING	QUALITY ASSURANCE	RIGGING EXPLORATION	RIGGING MILESTONES	RIGGING	CHIEF EXECUTIVE OFFICER — LLC BOOTH OWNER	CHIEF EXECUTIVE OFFICER	CHIEF TECH AUTHOR	CHIEF EXECUTIVE OFFICER	CHIEF EXECUTIVE OFFICER — MENTORSHIP RECIPIENT

Row 5

BZP PRO — FINANCES — ADVISED TO NOT SELL LLC BELOW 20 MILLION DOLLARS — RAISED MONEY FROM BANKING ALUM OF HARVARD AND YALE	BZP PRO — SONY PICTURES — 240 HOURS OF ILM LEVEL RIGGING COMPLETED IN 70 MINUTES	BZP PRO — Disney — MY HIK SET APPLIED ON TOP OF DISNEY FEATURE ANIMATION SETUP	BZP PRO — Disney Vampirina	Apple — Adobe	NCAA — LECTURED AT OVER 40 UNIVERSITIES	3DArtist — SURFACE SHADERS — COVER STORY	Maya / Motion Builder / MEL / Python / Photoshop / ZENO (ILM's software) / After Effects / Pixar's Renderman / HTML / C++ / HIK
2011-CURRENT	2017	2019	2019	2019			
CHIEF EXECUTIVE OFFICER	RIGGING PROTOTYPE	RIGGING PROTOTYPING	RIGGING PROTOTYPING	BETA TESTING	UNIVERSITY OUTREACH	3 WORLDWIDE MAGAZINES	SOFTWARE SKILLS

ILLUSTRATIONS

Adobe

Apple

ADOBE PRERELEASE TEAM: 20 MINUTE SKETCHES ON APPLE IPAD PRO 2

Born on December 6th, 1974, after Brent J. Zorich graduated St. Charles Preparatory High School in 1993, he went into the industrial design department, ranked in the top five nationally, at The Ohio State University, was a member of Sigma Alpha Epsilon fraternity, and graduated as the undergraduate design school student body president with a thesis project rebranding Nike retail. In undergrad, Brent worked in store sales and visual merchandising for Tommy Hilfiger. In 1997, as a young entrepreneur, Brent mocked up a prototype industrial design concept of a Reebok Golf Sandal incorporating the brand of Greg "The Shark" Norman, and presented the concept to the office of the CEO of Reebok, Paul Fireman, for production. While a student in the design department, Brent had a summer design internship doing illustration work for a nationally ranked luxury SUV design facility named Custom Coach in Columbus, Ohio. There he worked on transportation design for their client, John McConnell, owner of the NHL Columbus Blue Jackets (note: other clients of Custom Coach included John Madden's "The Madden Cruiser"; Deion Sanders; President George H. Bush; and Minister Louis Farrakhan- The Leader of the "Nation of Islam"- who Brent met in person while on site). Afterwards, Brent completed an internship doing corporate interior space design at Continental Office Furniture (Herman Miller) in Columbus, Ohio. Once graduated from The Ohio State University, Brent worked at the architectural firm ranked number 2 in the world, NBBJ, as a post graduate architectural intern with the client being the "Republic of China". He was fortunate enough to be in several "crit" sessions while on The Beijing Hotel for The Republic of China with the Chairman of Global NBBJ, Friedl Bohm. Brent then moved to Atlanta, Georgia, to work for Gensler, the architectural firm ranked number 1 in the world as an interior architect, focusing on retail design for Gensler Fortune 500 clientele. These projects included both design documentation and construction documentation for one of Gensler's premiere clients: Volkswagen. Brent was lucky enough while working in the studio to attend a firm practices session and meet and greet with M. Arthur Gensler, considered by many to be the most powerful architect on the planet. The key lesson he learned from Mr. Gensler was to be humble in business dealings. Arrogance is the quickest way to lose a client.

He left Atlanta and went back to the Ohio State ACCAD program, where computer graphics were invented in the 1960's by Professor Emeritus Charles Csuri, to complete a masters in computer graphics/ technical direction. Note: key alum of this program had made the liquid alloy T-1000 in "Terminator 2: Judgement Day" starring Arnold Schwarzenegger; the velociraptors in the original 1993 "Jurassic Park" directed by Steven Spielberg; the founder of FOX Blue Sky Studios who created "Ice Age", "Horton Hears a Who", and "The Peanuts Movie"; and the Chief Technology Officer of PIXAR Animation Studios. Of the 50,000 plus students at The Ohio State University, only approximately ten to fifteen students had security access to this ACCAD graduate program building. Graduate admittance into this program is determined by portfolio, and professional and academic achievement.

During Brent's tenure at ACCAD, the facility received a research grant through Brave New Pictures to develop a nationally televised one hour documentary on a newly discovered nano tyrannous dinosaur in Hell Creek, Montana. This one hour documentary, entitled "The Mystery Dinosaur", aired prime time on both The Discovery Channel and The Science Channel. Brent was key in both modeling and rigging on this feature. As apart of this grant, ACCAD was in full collaboration with The Burpee Museum in Rockford, Illinois, who were having weekly discussions with this ACCAD research group on physiology, anatomy, and biomechanics. Paleontologists from this museum had worked with Dr. Robert Bakker who was the Steven Spielberg paleontologist consultant on Jurassic Park. ACCAD alum of this project went on to work at studios such as PIXAR, Walt Disney Feature Animation, EA Sports, Sony Pictures Imageworks, Dreamworks Animation, and Activision; with Brent ending up at Lucasfilm. The ACCAD producer on this feature was the former department head of computer animation at The Ringling College of Art and Design. Note, Brent's graduate thesis was entitled "Rigging A Prehistoric Animal" where he automated the rigging process in python.

Finally in graduate school, he was in a DreamWorks SKG Outreach program being trained by Dreamworks supervisors in animation; and was also fortunate enough to be in a lecture session with Jeffrey Katzenberg. During the lecture, Mr. Katzenberg was asked what the most key role was in the production pipeline; his response was "the rigger." Brent altered his CGI focus from modeling to rigging upon hearing that. This outreach program duration was 20 weeks, with supervisors in the industry who were currently working at DreamWorks Animation bringing such previous film experience to the ACCAD students as "Spider-Man 2", "Finding Nemo", "Shrek", "Shark Tale", and "Madagascar". Brent was also asked to give a lecture, while as a student, to the College of the Arts at Ohio State student body at the Wexner Center for the Arts. There were a total of seven guest lecture supervisors from the program that went into extensive CGI techniques with each of the students on an individual basis. This gave Brent access to a professional pipeline in early development in his computer animation career that is still applicable to the types of work he is doing today. In these sessions, one of the people that he shadowed was the DreamWorks Animation SKG Rigging Supervisor that went over advanced rigging techniques, and first introduced Brent into the power of programming and scripting for automation. This particular supervisor, was the lead on Finding Nemo from PIXAR and who first taught Brent about "proxy rigging."

BRENT PHOTOGRAPHED WITH JEFFREY KATZENBERG, WHO IS THE "K" IN DREAMWORKS SKG, IN THE DREAMWORKS OUTREACH PROGRAM AT OHIO STATE.

BRENT'S BZP PRO BOOTH AT GDC.

BRENT'S BZP PRO BOOTH AT SIGGRAPH.

Afterwards, Brent went on to work in San Francisco, California, on Take 2 Interactive "NBA 2K", working with the data of Shaquille O'Neal (TTWO market cap September '18: 15.2 billion) (note: they are also the makers of the top selling IP on the planet, Grand Theft Auto); and then on to Orlando, Florida, for EA SPORTS, where he worked on "Superman Returns", "Tiger Woods PGA Tour", and as a rigging technical director lead on "Madden NFL" (which is the top grossing video game in North America) (EA market cap September '18: 34.8 billion). While on Madden NFL, Brent was key in breaking new ground in the character setup aspect of the digital football players by working with the Central Football leads in changing the player bodies to be anatomically correct. Previously, the digital players in Madden NFL and NCAA Football had elongated arms to exaggerate a more Disney style art direction. Brent played a key role in converting the players of the top selling title in North America to bio mechanical accuracy. Lastly on Madden NFL, Brent was key in adding 15 to 20 additional leaf joints to the animation rig to add hyper realism in regards to bicep and hamstring flexing. At EA SPORTS, Brent was in bi-monthly global meetings with EA VANCOUVER, EA ORLANDO, and EA LONDON, analyzing and recommending improvement on rigging assets of characters for ELECTRONIC ARTS top titles including "FIFA", "NHL", "NBA Live", "Facebreaker", and "EA Harry Potter." In these meetings, best practices with the ELECTRONIC ARTS BODYSHOP, global technology, global work flow, and global tools were explored.

Brent left the United States and moved to Singapore to become senior/ executive trainee/ best practices review committee of Lucasfilm, working with the former Chief Technology Officer of Peter Jackson's Weta Digital in Wellington, New Zealand (The Lord of the Rings). There at Lucasfilm, he worked on "Star Wars" intellectual property (showing work directly to George Lucas), "Indiana Jones IP" for Steven Spielberg, was brought in to work on monthlies prep on "Harry Potter and the Half Blood Prince" (sequence includes Harry Potter and Professor Dumbledore), and dailies shot critiquing on "Transformers Revenge of the Fallen" at Industrial Light and Magic research and development meetings (shots include Devastator and Optimus Prime), color correction work on "Star Wars The Clone Wars" with shots including Cad Bane and Obi-Wan Kenobi, while also frequenting the Skywalker Ranch for research in Marin County in San Francisco, California. The Best Practices Review Committee was a hand selected panel by the former Chief Technology Officer from Weta Digital consisting of approximately ten people. Brent had a strong vocal presence in these meetings where the goal of each was to set the digital standard in modeling, rigging, and rendering, for LucasArts, Lucasfilm Animation, and Industrial Light & Magic. While in Singapore, before being promoted and relocated to the home office in San Francisco, Brent was in a small research group of about six people focusing on film game convergence. In that group, the graphics researchers optimized an environment that was inhabited by Master Yoda from "Star Wars: The Clone Wars", as well as Anakin Skywalker's Jedi Apprentice, Ahsoka Tano, from that same series. Brent combined the underlying engineering rigging aspects of the young Jedi with Jango Fett from ILM's Oscar Nominated "Star Wars Episode 2: Attack of the Clones." The team used those assets to create a playable level in the Unreal Engine on the XBOX 360, which was shown to Mr. Lucas in Singapore. Before this film game convergence research began, Brent was doing additional exploration in the Autodesk Maya files of such Star Wars characters as General Grievous, Kit Fisto, Anakin Skywalker, Padme Amidala, Jar Jar Binks, and a few others. He was analyzing their character technical direction and looking for ways to improve the control set ups to build out universally within Lucasfilm. In San Francisco, executive training within Lucasfilm Corporate was administered to Brent by the consultancy Engaged Leadership LLC. One of his personal highlights in addition to creating the character technical direction on Jabba the Hutt and Boba Fett was setting up the character code named Ultimate Evil, who was the cover character of Star Wars The Force Unleashed Ultimate Sith Edition. For both spinal research of Jabba as well as biomechanics of Boba he worked with the library of the Skywalker Ranch frequenting the facility in Marin County. Brent's initial goal was to become a creative studio executive at Lucasfilm. Worldwide published magazine, 3D ARTIST MAGAZINE, did a two page worldwide feature on Brent at Lucasfilm.

Brent parted ways with California and Singapore and cofounded an animation software company in Columbus, Ohio, named BZP Pro with investors in the banking industry that are alum of Harvard and Yale from Chicago, Illinois. BZP Pro is engaged with accelerator REV1 VENTURES. The LLC had booth representation at both The Game Developers Conference (GDC) and Siggraph. The animation rigging software he wrote, called The Smart Skinner, had a university penetration of 250 universities on 6 continents (due to BZP Pro's partnership program), made the cover of a world wide magazine, and was under acquisition review several times; the last time working with a Harvard investment banker formerly from Goldman Sachs. Brent was advised to not sell the formula below 20 million dollars by an affiliate of one of the founders of ILM. With the investment banker, they were in acquisition negotiations with a Silicon Valley headquartered company worth over 100 billion dollars. Note, (Mark Zuckerberg) FACEBOOK LLC, according to reports, was at approximately 85 schools pre "Series A" investment; BZP Pro outpenetrated FACEBOOK in university acceptance in the pre "Series A" investment stage with a "freemium" business model similar to FACEBOOK LLC: "free-to-play" for collegiate users with sales through "add-ons".

The initial marketing strategy was that universities would receive the "freemium" software for three years to be fully integrated into their curriculum. Then, upon the fourth year of the universities requesting an upgrade, they would be charged an annual subscription thereafter; with students in the classroom being able to purchase additional individual licenses. The Smart Skinner automates 80 hours of advanced character technical direction into about 20 minutes of labor with minimal cleanup at the technical level of the companies Brent was previously employed, including Industrial Light and Magic's Oscar winning Block Party Rigging Software. Upon purchase, The Smart Skinner perpetual license is active for the current year of Autodesk Maya. When Autodesk Maya upgrades annually, the customer would need to repurchase a new Smart Skinner license. BZP Pro froze the business operation when they were under the last acquisition review with the Silicon Valley company worth over 100 billion dollars and is currently in the process of relaunching. NOTE: Brent took an extended leave of absence to take care of his terminally ill mother who passed from pancreatic cancer, as well as make his father's house ADA compliant who is wheelchair bound with multiple sclerosis. Afterwards, while also updating the Smart Skinner pipeline and adding a pose library, Brent completed rigging prototyping work for both Sony Pictures as well as Walt Disney Feature Animation; working with his partner studio in Los Angeles. Most recently, Brent went under NDA with ADOBE, INC (Market Cap November '19: 142 billion) where, as an illustrator, was beta testing their design ecosystem (Photoshop) for APPLE's IPAD PRO 2 (APPLE Market Cap November '19: 1.17 trillion).

While co-operating BZP Pro with his partners, Brent will be able to continue to work on visual effects and video game blockbuster titles [see consulting rates], and is hopeful to pursue additional advanced degrees in Business and Engineering as relates to Entertainment Technology. He is also in the beginning stages of conceptualizing more potential venture funded IP. Brent looks forward to lengthening his technical direction and entrepreneurial portfolio. For fun, Brent enjoys going to four star steakhouse bars to watch ESPN; lecturing at universities around the country on the topic of video game and visual effects development; and at Starbucks, daily, sketching Frank Gehry influenced deconstructive buildings on his iPad Pro 2 (with APPLE Pencil), or Samsung Galaxy Note 10 Plus (with the Samsung S-Pen), using the ADOBE Design Ecosystem software.