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Designosaurs: Technological Evolution and De-Extinction Through an Advancing Medium

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DESIGNOSAURS:
TECHNOLOGICAL EVOLUTION
AND DE-EXTINCTION THROUGH AN ADVANCING MEDIUM

by

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B.A.S. Indian River State College, 2016

A dissertation submitted in partial fulfillment of the requirements
for the degree of Master of Fine Arts in Studio Art and the Computer
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ABSTRACT

This thesis is an examination of my imperative need to understand dinosaurs and their role in science and art, acting as prehistoric symbols for science and imagination. Like our understanding of dinosaurs, my body of work is evolving simultaneously with the technology of our time. Through the synthesis of artistic language with science and technology, I create dynamic experiences allowing a viewer to witness an extinct living being in its entirety, an otherwise lost experience. By utilizing digital modeling, animation techniques, and interactive video games, my work speaks to the power and diversity of digital media's role in visualizing artifacts in our society and culture.

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TABLE OF CONTENTS

LIST OF FIGURES	vi
LIST OF TERMINOLOGY	vii
INTRODUCTION	1
THE EXTINCT.....	2
TECHNOLOGICAL BREAKTHROUGH.....	5
GRADUATE WORK	8
Monster Hunter Mod.....	9
Dankey Kang.....	11
Deinonychus_Ground_Move_Fwd.....	15
Walking Dog	18
Idolr@ptor	19
King.....	21
Brachiosaurus	22
CONCLUSION.....	24
LIST OF REFERENCES.....	25

LIST OF FIGURES

Figure 1 <i>Gorgosaurus</i> attacking a <i>Pachyrhinosaurus</i>	4
Figure 2 <i>Vicious Dinosaur</i> , 2008	5
Figure 3 <i>George</i> , 2009	6
Figure 4 <i>Yian Garuga</i> Dossier, 2017	9
Figure 5 <i>Dankey Kang</i> , 2017	11
Figure 6 <i>Q4U</i> . Feng Mengbo, 2002	13
Figure 7 <i>Deinonychus_Ground_Move_FWD</i> , 2018	15
Figure 8 <i>Gertie the Dinosaur</i> . Winsor McCay, 1914	16
Figure 9 <i>Walking Dog</i> , 2019	17
Figure 10 <i>Idolr@ptor</i> , 2019	19
Figure 11 <i>King</i> , 2019	21
Figure 12 <i>Brachiosaurus</i> , 2019	22

LIST OF TERMINOLOGY

CGI – (Computer Generated Imagery). Visual effects created using computer software.

Pachyrhinosaurus – a genus of horned *ceratopsid* dinosaurs that roamed northwestern North America near the end of the Cretaceous Period.

Gorgosaurus – a genus of *Albertosaurus* characterized as large carnivorous dinosaurs of the Late Cretaceous Period, found as fossils in North America and eastern Asia.

Allosaurus – large carnivorous dinosaurs of the genus *Allosaur*, living during the Late Jurassic period in the western United States.

Giraffatitan – genus of Sauropod dinosaur considered to be distinct from *Brachiosaurus*, living during the Late Jurassic.

Modding – slang expression derived from the verb “modify”. The act of modifying hardware or software to perform a function not originally conceived or intended by the designer.

ARK: Survival Evolved – an action-adventure survival videogame developed by Studio Wildcard. In the game, players must survive being stranded on an island filled with roaming dinosaurs and other prehistoric animals, natural hazards, and potentially hostile human players.

Monster Hunter – a series of fantasy-themed action role-playing videogames developed by Capcom. Players take the role of a Hunter that serves to help protect a village or help research the large monsters that roam the various areas near the village. This is generally presented through a series of quests to slay or trap a monster but can include numerous optional challenges.

Steam – a digital distribution platform developed by Valve Corporation for purchasing and playing videogames.

Garuga123 – the online pseudonym used by Sean van Zyl.

ZBrush – a digital sculpting application that combines 3D modeling, texturing, and painting.

Autodesk Maya – a 3D computer graphics application used to create 3D assets, specializing in animation.

Unreal Engine – a suite of integrated tools for designing and building games, simulations, and visualizations. *ARK: Survival Evolved* runs using this game engine.

Meme – an amusing or interesting item or genre of items that is spread widely online, especially through social media.

Sonic the Hedgehog – an anthropomorphic blue hedgehog with supersonic speed, and the protagonist of the *Sonic the Hedgehog* franchise.

Deinonychus – a genus of carnivorous dromaeosaurid theropod dinosaur which lived during the early Cretaceous Period.

Dankey Kang – a two-pane image that consists of a doctored *Jeopardy!* question describing Sonic the Hedgehog and a screenshot of a contestant erroneously answering "Dankey Kang," a misspelling of Nintendo's iconic gorilla character Donkey Kong.

Doedicurus – a prehistoric glyptodont, living during the Pleistocene until the end of the last glacial period, around 11,000 years ago.

Acrocanthosaurus – a large, carnivorous theropod dinosaur living during the Early Cretaceous Period, found in Canada and North America.

Theropod – a carnivorous dinosaur group whose members are typically bipedal. *Theropod* dinosaurs are one of the closest descendants to modern day birds.

Brachiosaurus – a genus of *Sauropod* dinosaur that lived in North America during the Late Jurassic.

Velociraptor – a genus of *Dromaeosaurid* theropod dinosaur that lived during the Late Cretaceous Period.

Dromaeosaurid – a family of feathered theropod dinosaurs, which translates to “Running Lizards”. This family includes the genus *Deinonychus* and *Velociraptor*.

INTRODUCTION

My imagination grew in tandem with the technology surrounding my childhood. Animated films, television, cartoons, and a PlayStation videogame console were, for the most part, integral to my daily routines. These were the main stimulus for my creativity. Desiring an output for my imagination, I had various toys that I used to emulate an array of scenarios, reminiscent of what I would observe through television and games. Occasionally, my time spent playing was invested in another outlet, physically manifesting my thoughts through illustration.

Art has always been a prominent aspect of who I am; I had a way to show others my passion, in a means that does not require words. I enjoyed making a record of the thoughts and forms that occurred mentally during playtime. I devised dramatic scenes of various animals, both real and imagined, in the heat of combat or casually going about their lives. This adaptation of 19th century genre art would carry on throughout my early life, and continually evolve throughout my undergraduate and graduate study.

THE EXTINCT

Animals are of huge interest to me and took a large portion of my childhood interest. Among all the creatures of the world I was constantly learning about, there was one group that stood above the rest, which pervades most children's minds at some point: Dinosaurs. Many of my toys, books, shows, and games were about dinosaurs; I remember fondly the prehistoric themed level of the game *Ape Escape*. At the levels end you entered an unwelcoming volcanic scene, and your objective was to capture an ape which sat on the back of a Tyrannosaurus Rex.

Perhaps the most powerful vehicle for dinosaurs entering my life was the 1993 film *Jurassic Park*, directed by Steven Spielberg. Based on the 1990 best-selling book of the same name, the film ushered a cinematic revolution. Although there were films that utilized CGI before it, such as Steven Lisberger's *Tron* and James Cameron's *Terminator 2: Judgement Day*, CGI had little to no merit in the industry, and the financial costs of high-tech special effects were not worth the returns. *Jurassic Park* transformed the role of CGI in cinema, successfully blurring the line between illusion and reality by carefully mixing computer generated visual effects with animatronics and practical effects. As American film critic and writer Tom Shone says in his book *Blockbuster*, "*Jurassic Park* heralded a revolution in movies as profound as the coming of sound in 1927" (Shone, pg. 4035). The sense of awe the main characters experience at the sight of the massive *Brachiosaurus* was mirrored in the audience; the creature's presence was believable and astonishing, and it felt as if you were witnessing a living and breathing behemoth. Not only succeeding as a technological breakthrough, the film acted as the first major motion picture to give audiences a realistic visualization of a dinosaur. This was due largely to Jack Horner and his role as scientific consultant on set, who is also a famous Paleontologist that Sam Neill's character, Dr. Alan Grant, is based on (Kutner). During the early 90's, dinosaurs were

still largely considered by the public to be slow and stupid swamp-dwelling creatures. *Jurassic Park* gave dinosaurs a spotlight outside of scientific circles, effectively eliminating the perception of these stereotypes and creating a new benchmark for what dinosaurs were and how they lived.

Dinosaurs are an enigma to me that, as a child I could not come close to any reasonable explanation for my interest other than “they are cool”. However, in my years of running around the playground roaring like a T-rex, or encountering a *Triceratops* in a videogame, some things have become clear. Unlike the animals I was observing on television and in books, there was an air of mystery around dinosaurs. Elephants or lions could be studied in the natural world, and it felt as if there was a finality to them. What about a creature that existed 65 million years before our time and all that remains are the fossilized bones of these beasts? How would a *Pachyrhinosaurus* interact with a *Gorgosaurus*? Would an *Allosaurus* have preyed on *Giraffatitan*?



<http://stores.dansdinosaurs.com/gorgosaurus-vs-pachyrhinosaurus-finished-model-by-dans-dinosaurs/>

Figure 1 *Gorgosaurus* attacking a *Pachyrhinosaurus*, sculpture by *Dan's Dinosaurs*.

Most of our knowledge of dinosaurs is ultimately theory. We can surmise behaviors and ecology, but it is all gleaned from our present, observable world. Information about these creatures, even that which has been established as fact for some time, is sometimes debated. A study by Matthew Baron in 2017 provides substantial evidence that our understanding of the entire dinosaur family tree, for over a century, may be incorrect. “This is like someone telling you that neither cats nor dogs are what you thought they were, and some of the animals you called ‘cats’ are actually dogs”, says Ed Yong at *The Atlantic* (Yong). This shroud of time places Dinosaurs in a delicate tension between the practicality of science and technology, and the boundless realm of imagination. Dinosaurs captivated my mind through the movies and shows I watched, the games I played, and the art that I created.

TECHNOLOGICAL BREAKTHROUGH

For much of my life, I was convinced I would go into a career that involved animals, living or extinct. Paleontology was the first choice, but I also considered marine biology, entomology, and herpetology. I was still actively filling piles of college-ruled notebooks filled with illustrations of real and re-imagined beasts, but I did not consider a career in an art field.



Figure 2 *Vicious Dinosaur*. By Author, 2008.

It was not until my first year of high school that I began to consider a career that utilized my artistic ability. I was taking a Photoshop elective course, and while browsing tutorials online I came across an advertisement featuring a photorealistic tortoise with the caption “ZBrush”. I was suddenly hit with a massive realization that I am ashamed to say had never occurred to me up until that point. There are artists that make these characters, environments, and ideas! They

mold them like clay or paint as if on canvas in a digital space! So long as I had a computer, I could sculpt my visions virtually; my art was boundless. This jump started my fascination with digital art and digital processes. I was always surrounded by products of this medium in one way or another, but I never applied it to my art. My excitement grew over the coming years as I quickly learned I had an aptitude for sculpting and animating using digital tools. My thousands of hours gaming had provided fluency in digital environments; how to navigate it and interact with it, and the techniques to build it. Looking back now, I do not think I understood what I had access to. I had a new medium for showing others my thoughts and imagination without words.

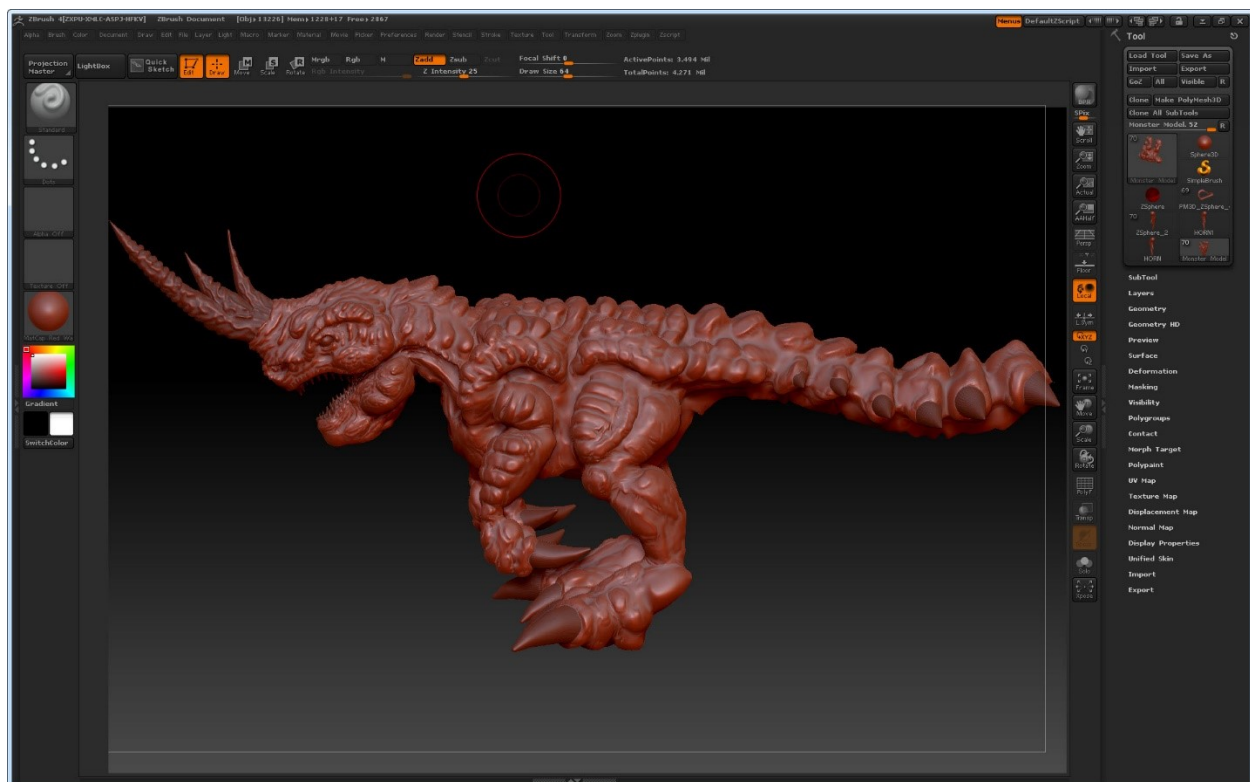


Figure 3 *George*. By Author, 2009

Visual representations of my ideas were now shared with this interwoven community called the Internet. Like modern-day art salons, I was able to share work, discuss ideas, and learn from people I would never meet. I could view the work and influences of others, while

simultaneously inspiring viewers with my own work. It was a vast system which was a tool, a medium, and a vehicle for my art.

During this time, I was heavily influenced by the work and content of the *Monster Hunter* game franchise. *Monster Hunter* is a series of videogames known for an astounding variety of fantasy monsters, with beautifully crafted models and animations. The entire focus of the game centers around interaction with these creatures through a hunting process, ending in either the slaying or capturing of the target monster. I surrounded myself with the artwork, music, and concepts of the franchise. There was a great deal of care invested in the creation of the monsters and their world. Similar to what *Jurassic Park* achieved with its' cinematic audience, the monsters felt alive and believable to players. I adopted similar practices in the creation of my own organisms, now considering the how's and why's behind an animal's biology, anatomy, and ecology. Several notebooks were filled with different species of dragons that I created, titling the series *The Field Guide to Dragon's*. Illustrations were accompanied by general information such as diet, size, and temperament. The later pages of the books were dedicated to more in-depth written information about their behavior and native habitats, giving readers an idea of what to expect should they ever encounter these dragons. With these notebooks becoming the bulk of my illustrative work, I continued to learn about digital practices, and expand my work in the medium.

GRADUATE WORK

Where I once sat in my room with a pile of dinosaur figures and Lego's, I now sit at a desk sculpting and animating with my new artistic tools. Like my transition from the physical to the digital world in high school, my method of creating art evolved. This concept of technology expanded further as I proceeded through college, and flourished when I began modifying, or modding, the game *ARK: Survival Evolved* during my first semester of the Master's program. Conceptually, it was everything I ever wanted as a child playing with his toys: a world where you are surrounded by dinosaurs and other prehistoric life, and there is no other goal besides survival. You would have to defend yourself against aggressive fauna, and even had the option to tame them and utilize their own unique abilities which varied between species. In addition to this the developers, known as Studio Wildcard, were open to public mod access. This means that the community that surrounded the game was able to freely access and edit the games assets and structure itself, establishing what is essentially an artist collective surrounding the game and its' audience. I was able to use the same tools the developers utilized for the creation of their world, free to add entirely new creations where I thought necessary. This gave rise to an idea: "What if I could run around the ARK world as a creature from the *Monster Hunter* games?" The childhood act of running around pretending to be a dinosaur was evolving into the game world. With one game having fantastic subjects and the other being a massive realm of freedom, I desired to marry the two.



Figure 4 An ARK styled “Survivor Note” featuring an iconic creature from *Monster Hunter*. By Author, 2017.

Monster Hunter Mod

In December of 2016, I created the mod “Monster ARK: Hunting Evolved” to share my virtual installation with the community. I was able to disseminate my world through a digital distribution platform known as Steam and was met with immediate approval. Within a week of the works creation, over ten thousand people had downloaded and begun to interact with my installation in their own methods of performance, praising the faithfulness to recreating the monsters while also demonstrating my own personal flair. I created notes and dossiers of the monsters. As part of ARK’s gameplay, players would come across tattered collections of notes written by different survivors within the world’s narrative, giving insight about the various creatures or phenomena occurring. The Monster Hunter Dossier’s validated the monster’s existence within this new game world, creating a sense of immersion that made the monsters more believable in ARK’s world. Like the Dragon Field Guides I was creating in High School,

the Dossier's conveyed essential information necessary for interaction with the subjects. Dynamic illustrations in addition to details such as temperament, diet, and abilities were written from the perspective of a survivor with firsthand experience encountering them, aiming to provide beneficial knowledge for survival. ARK players began to follow my work and progress, eagerly awaiting my next creation. People from all over the world created videos of themselves interacting with the creatures through various means. The scope of the mod was impressive to consider while developing a studio practice. People from all over the world, regardless of background or culture, could interact with the work. There was no need to visit a gallery, or concern over viewing a derivative; if you had *ARK* and a computer, you could interact with the content in its true form. I managed to fulfill an itch in their imaginary world, one that satisfied players of ARK and players of *Monster Hunter*. Known by the online moniker Garuga123 (ironically my favorite creature from *Monster Hunter*) I quickly became a well-established creator within ARK's community.

As this work carried on I found my studio practice started to incorporate more use of digital tools, such as ZBrush, Autodesk Maya, Unreal Engine, and Virtual Reality hardware. *Art Angler* was created as a reflection of my desire to make art during a challenging semester. Appearing as a large anglerfish creature from *Monster Hunter*, the beast would endlessly pursue the player to kill and eat them, while the only means of defense for the player was a paintbrush. However, this piece had almost no lasting power and was little more than an outburst from myself. I desired to create something that spoke about the community in some way, and how artwork and content was interacted with through a digital medium.

Dankey Kang

I created *Dankey Kang*, featuring a heavily modified Doedicurus from ARK, to subvert the expectations of game players and mock the community's seriousness of the subject. *Dankey Kang* was designed around the popular game icon Sonic the Hedgehog, the protagonist of a series of games which has become infamous for the substantially low quality of recent entries to the franchise. Internet users have produced several memes, which can be defined as an activity, concept, or piece of media that spreads from one person to another via the internet, in response to the diminishing quality and ultimately designating Sonic as a massive disappointment within game culture (Alexander). Featuring systems like that of the titular hedgehog's own defining traits, I repurposed ARK's Doedicurus as a satirized Sonic, named *Dankey Kang* in reference to another significant meme.



Figure 5 The character *Dankey Kang* as it appears in *ARK: Survival Evolved*. By Author, 2017.

Having spent a great amount of time and dedication to the monster hunter mod, I desired to insert a bit of jovial humor on what became a serious undertaking, lampooning the community's critique on the experience and the exaggerated value they projected onto it. The creature was hidden within my mod's assets and was never directly referred to. Players were shocked to learn of its existence as blaring music marked the characters presence, along with its ludicrous speed and shouting of dialogue. While some users reveled at the inclusion of such an oddity, most players were resentful and distraught. Word of the absurd character spread throughout the community and with it, a considerable amount of negative criticism. Players voiced their agitation against the content, leaving several comments in regards to the characters existence and the shattering of their immersion.

Dankey Kang, albeit in a more obstructive manner, treads on similar themes to *Q4U*, created by Contemporary Artist Feng Mengbo, which subverts the core concept and gameplay mechanics of the popular game Quake 3 and creates a different dynamic for players to consider in their approach. By editing the source code of the game, Mengbo had effectively created an instance where players could battle "him", by changing the characters in the game to his likeness (University of Chicago News Office).



<http://artelectronicmedia.com/artwork/ahq>

Figure 6 *Q4U*. Feng Mengbo, 2002.

The piece was set up with 3 large projected screens, each displaying different views. Viewers were able to play with Mengbo himself, residing in the comfort of his own home, among other Chinese players. *Dankey Kang*'s existence within *ARK* destroyed players perception of the world and what they sought to take away from the experience. Desiring the peril of a world rife with prehistoric entities, the presence of a fast and obnoxiously loud vibrant blue creature wearing track shoes was entirely unwelcome. Like Mengbo seeking to inject a way for players to interact with "him", I craved for a way to inject my crass humor into my work, forcing the audience to interact with it in ways they never wanted.

Videogames as works of art is a very controversial subject in the art world. Jonathan Jones, a British Art critic who has been writing for *The Guardian* since 1999, has this to say on the topic:

Walk around the Museum of Modern Art, look at those masterpieces it holds by Picasso and Jackson Pollock, and what you are seeing is a series of personal visions. A work of art is one person's reaction to life. Any definition of art that robs it of this inner response by a human creator is a worthless definition. Art may be made with a paintbrush or selected as a ready-made, but it has to be an act of personal imagination (Jones).

This dialogue provides merit to the mod work I am creating. Mods are, more often than not, the product of a single creator's idea or concept. It is a modern version of emerging artists; people creating a work in their image to add to a larger community who value their vision. Acting as a personal response to my digital environment, my mods seek to change or correct details of the world by introducing characters that I consider significant examples of evolutionary creation, brought to life by my knowledge and skill through a digital medium. Although these reflections may not be direct statements of our physical world, the work is a product of the defining tool/medium of our time, and its role in society validates it in a contemporary art practice.



Figure 7 The last image of *Deinonychus_Ground_Move_FWD* before it shattered. By Author, 2018.

Deinonychus_Ground_Move_Fwd

While my game modification body of work continued to expand, I began creating sculptural work with the intent of conveying the previously mentioned passion for emulating life. The first of these works was the piece *Deinonychus_Ground_Move_FWD*, which shows a 3D printed set of *Deinonychus* legs in a running motion. Every individual pose of the 24-frame animation was combined to create one solid shape, effectively creating the progression of movement and time through sculpture. Animation is perhaps the aspect of my creative process that I enjoy the most. I wanted a piece that captured the concept of creating multiple smaller “works”, all culminating to create a single, greater work. There are far too many influences and artworks to mention in regards to this piece. A few notable examples would be *Dynamism of a Dog on a Leash* by Giacomo Balla, or *The Horse in Motion* by Eadweard Muybridge, with both having obvious threads to movement and time. However, I consider American Cartoonist and

Animator Winsor McCay, and his film *Gertie the Dinosaur*, incredibly important within this context. Made in 1914 as one of the first ever key-frame animations, *Gertie the Dinosaur* had shown what was essentially our visual understanding of dinosaurs at the time living through motion, something *Jurassic Park* would also succeed in doing almost a century later. *Gertie the Dinosaur* is considered the first “personality” animation. It marked the beginnings of individuality in cartoons. *Gertie the Dinosaur* was real enough that the audience observing McCay perform with the character could identify with Gertie (Williams, pg. 16).



<http://deeperintomovies.net/journal/archives/11196>

Figure 8 Still-frame from *Gertie the Dinosaur*. Winsor McCay, 1914.

By creating multiple individual illustrations as well as separate foreground and background animations, McCay had compiled “footage” of a living Gertie, which would follow and occasionally ignore his commands. Like *Gertie*, *Deinonychus_Ground_Move_FWD* mimics life through motion by rendering the forms of a subject through the passage of time. The *Deinonychus* piece showed potential for sculptural work made from a 3D printer. Aside from my illustration work, much of my art was viewed through a computer monitor. Access to a 3D printer allowed me to advance the work I was creating digitally and bring it out of the unreal into a physical space.



Figure 9 *Walking Dog*. By Author, 2019.

Walking Dog

Walking Dog was the second of these works to create a physical presence, the first being *Deinonychus_Ground_Move_FWD*. Acting as self-portraiture, *Walking Dog* depicts an *Acrocanthosaurus* struggling to hold onto a dog's leash as the pet pulls it forward. Once again embodying humor in my work, *Walking Dog* communicates common human interaction with man's best friend. This is conveyed through an *Acrocanthosaurus* character which is proportionally accurate to the accompanying pet. Being a rather large, carnivorous species of dinosaur, it is a comical juxtaposition seeing the dog dragging the massive creature along its' way. With the dog being modeled after my own pet, the dinosaur species was chosen to mimic my likeness and build; while most species of *Theropod* are rendered to be stocky or fat, *Acrocanthosaurus* has a very narrow body structure similar to my tall yet skinny stature. The grey coloration returned from the first 3D sculpture, acting as a callback to the digital space it originated from. In a majority of 3D digital applications, the default color for models is a neutral grey to aid in the setup of lighting and view details on the model. Brought from the unreal into the real, I wanted an aspect of the aesthetic to reference the original medium. This color choice is persistent in all my 3D prints. *Acrocanthosaurus* illuminated the possibilities with physical sculpture. It was always crucial for me to depict life through various details, such as sound, movement, color, etc. However, I came to understand that this could be achieved while concurrently injecting additional meaning to the work.

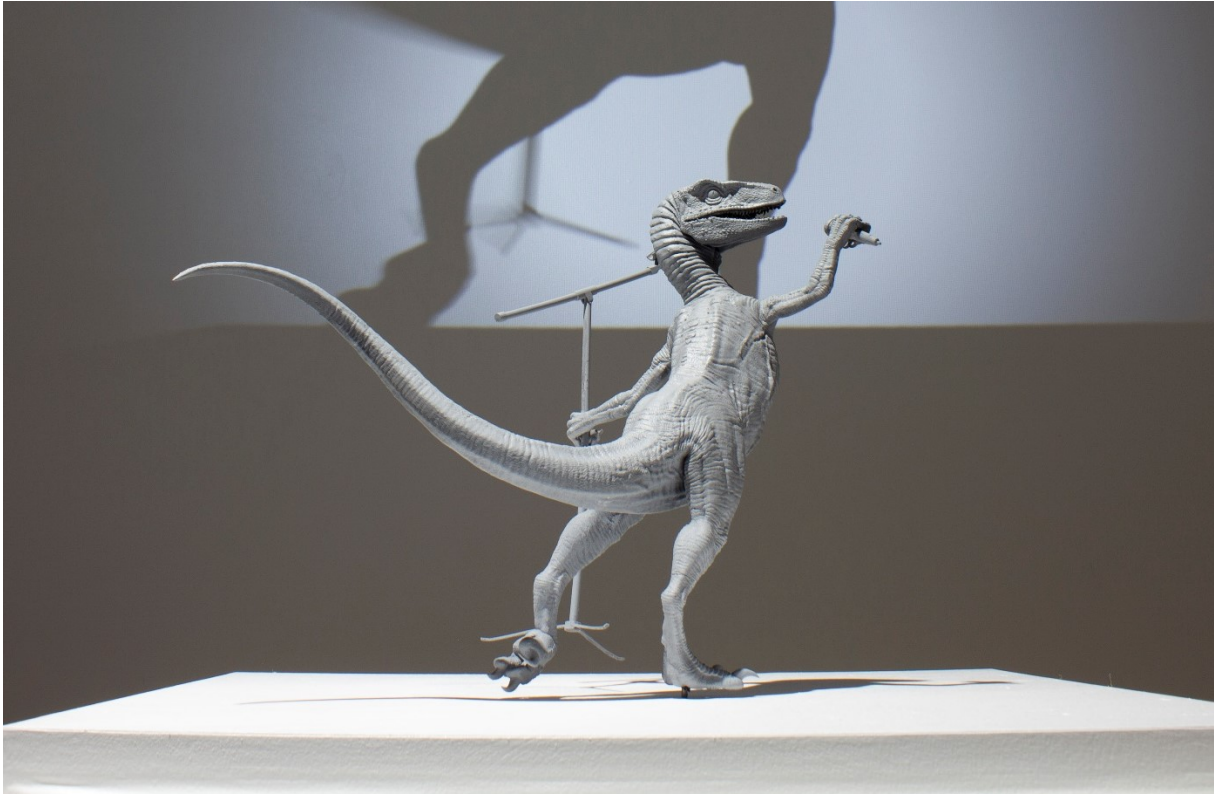


Figure 10 *Idolr@ptor*. By Author, 2019.

Idolr@ptor

Idolr@ptor speaks on the influence of technology over our knowledge and culture, while maintaining the desire to make convincing extinct life. *Idolr@ptor* features a *Jurassic Park* Velociraptor dancing in a very theatrical manner, with a microphone in one hand and microphone stand in the other. The book, and most notably the film, manipulated details about the iconic Velociraptor in order to achieve greater presence on screen. The cinematic icon is based on the genus *Deinonychus* in almost every detail, from the size of the creature to the locations of fossil discoveries. The name *Velociraptor*, which is associated with a much smaller genus of *Dromaeosaurid* found in Mongolia, was chosen by author Michael Crichton because “It’s more dramatic” (Cummings). Other features of the raptors’ physical appearance were debated during film production. Early motion tests of the film show the original raptors with

flicking tongues, lending to the idea of a frightening, cold-blooded reptile. The flicking tongue was cut from the film due to strong input from scientific consultant and Paleontologist Jack Horner (NBC News). However, the raptors retained most of their reptilian nature and became established as terrifying and almost unnatural entities of pop culture.

The sculpture, a literal “Idol Raptor”, is a physical manifestation of popular media’s skewed vision of dinosaurs, important subjects of Earth’s history, and our idolized perception of them. The name itself also reflects absurdity, which is a reference to a popular Japanese rhythm game series. Known as *THE iDOLM@STER*, the series’ central focus is the training of fictional prospective pop idols on their way to stardom. This is based on real Japanese Idols, which are typically associated with marketing in Japanese Pop Culture. For a franchise with such high commercial success, earning up to \$588 million in mobile game revenue over 2 years (Jp App Index), it is comical to see it attributed to a cast of unreal, digital characters. I felt it only fitting to place the Jurassic Park Velociraptor, a non-existent appropriation of the real specimen, under the same spotlight and title the piece appropriately.

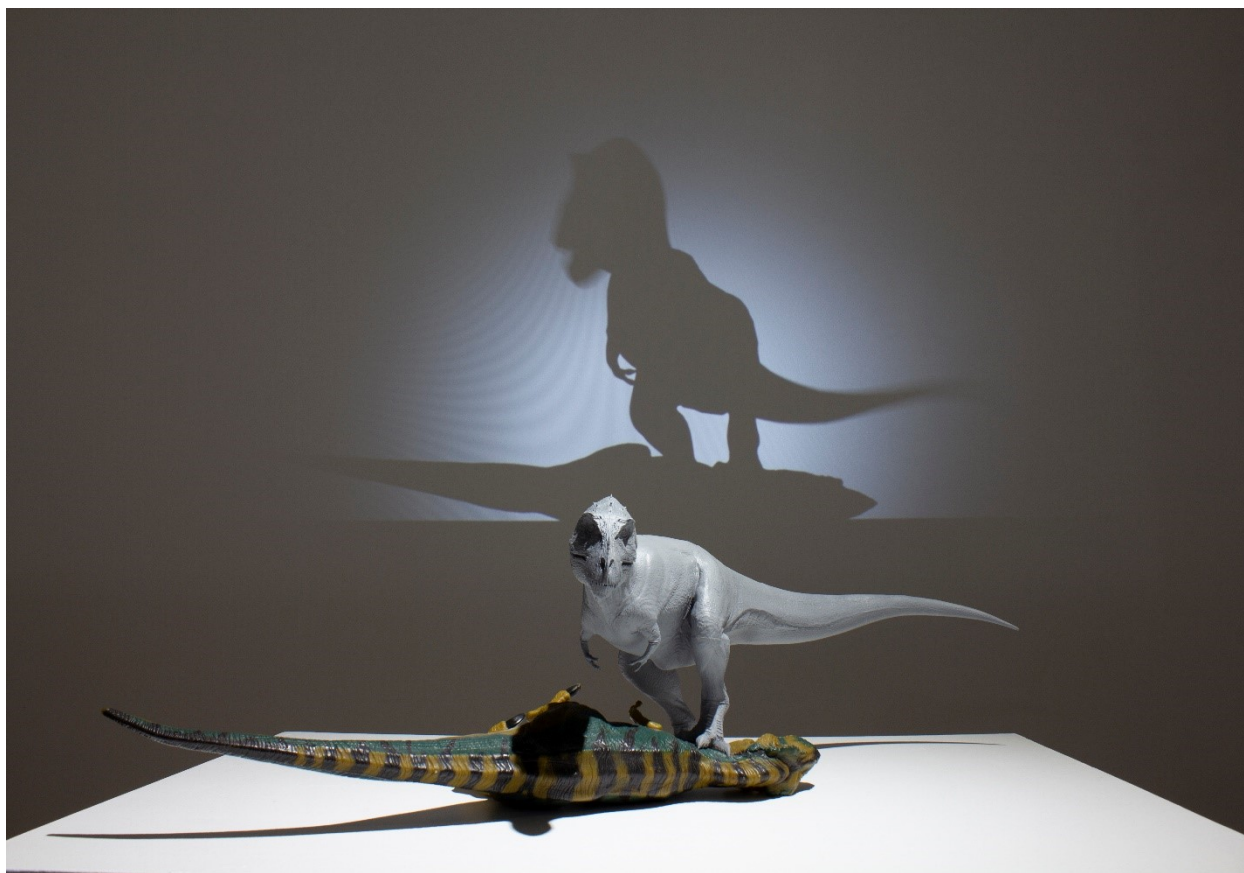


Figure 11 *King*. By Author, 2019.

King

King presents viewers with a 3D printed *Tyrannosaurus Rex* standing atop a seemingly defeated toy of the infamous *Jurassic Park* T-Rex. While the toy mimics the films likeness and our understanding of *Tyrannosaurus* from the early 90's, the printed model is sculpted to reflect contemporary scientific research. Studies and fossil findings have evolved the visual representation of the species significantly, such as the likely addition of plumage, and changes in the forearm and finger posture (Dhar). *King* conveys the evolution of knowledge through technology, as well as the progression of play through time. The printed Rex is the newer, “evolved” form, conquering the older and discarded figure. Originally relying on a child’s imagination to “live”, the method of play has moved on to utilize creativity through a digital

space. While the sculpture was palpable in some of its content, the piece still lacked something. I wanted a way to further imply the idea of this entity being alive through technology and imagination. I created an animation of the two figures and cast a light within the scene. By rendering out the shadow of the animation, I was able to create a projection of the sculpture's shadow "moving". The projected shadow was successful, elevating the content using digital techniques. This shadow projection method was also utilized for *Idolr@ptor* and *Walking Dog* during the Graduate Exhibition.



Figure 12 *Brachiosaurus*. By Author, 2019.

Brachiosaurus

While my more recent mod content successfully created dynamic experiences with a select few species, I had no work embodying that sense of awe in a studio practice.

Brachiosaurus rectified that gap in the work. Utilizing Virtual Reality, *Brachiosaurus* transported the viewer into a massive white void with various, accurately sized *Brachiosaurus*

specimens wandering in the distance. The white void was chosen to emphasize the creatures themselves, allowing no other point of focus besides the dinosaurs themselves. One subject in particular roams uncomfortably close to the viewer, showcasing the incomprehensible size of the species. Modeling of the form, the color and texture of its' appearance, the animation of its' movements, and the sounds as it bellowed and stomped around the audience; every aspect of this animal's existence was crafted by me. *Brachiosaurus* effectively revealed to viewers, through new emerging media, my thoughts and vision without words. Just as Dr. Alan Grant and Dr. Ellie Sattler were at a loss for being able to see a dinosaur and experience John Hammond's vision in *Jurassic Park*, *Brachiosaurus* allows viewers to be in the presence of an outstanding example of evolutionary creation. A way for others to experience the same astonishment and wonder as myself when visualizing these amazing creatures lost to time.

CONCLUSION

Dinosaurs are a constant reminder of our own impermanence. Our time on this planet is not infinite, and at some point our existence will cease, either by our own hand or through natural causes. They existed for a remarkable amount of time, about 165 million years, while humans have only existed for about 200 thousand years; less than 1% of the time dinosaurs occupied the planet. I am using dinosaurs as a tool to talk about our past, present, and future. Our rapid development of tools and technology, and our constantly evolving knowledge of various subjects are all achieved on such a minute scale of time. The Era of dinosaurs is a mirror to our own: they lived and conquered our Earth, evolving constantly for optimal survival and growth of the group, until their time had finally come to an end. I am using the symbol of dinosaurs to create a conversation about the history of our planet in comparison to our current knowledge and methods.

To this day, a single phrase that I have known since childhood will remain true until the day I am extinct: Dinosaurs are cool. In the 25 years that I have been alive, I have come to several elaborate conclusions as to why dinosaurs are important to myself and many others. They may be extinct in reality, but their impact on humans has immortalized them, becoming prehistoric symbols for science and imagination. Dinosaurs will continue to live through our minds, and our visualization of them will keep evolving through the progression of technology and our species' imperative to understand the unknown. As the digital medium continues to advance, and our ever-growing understanding of dinosaurs expands, so too will my need to create.

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