

# TRANSFORMATIONS

APP DIGIFAB

NOVEMBER 4, 2022 - MAY 6, 2023

MAYER GALLERY

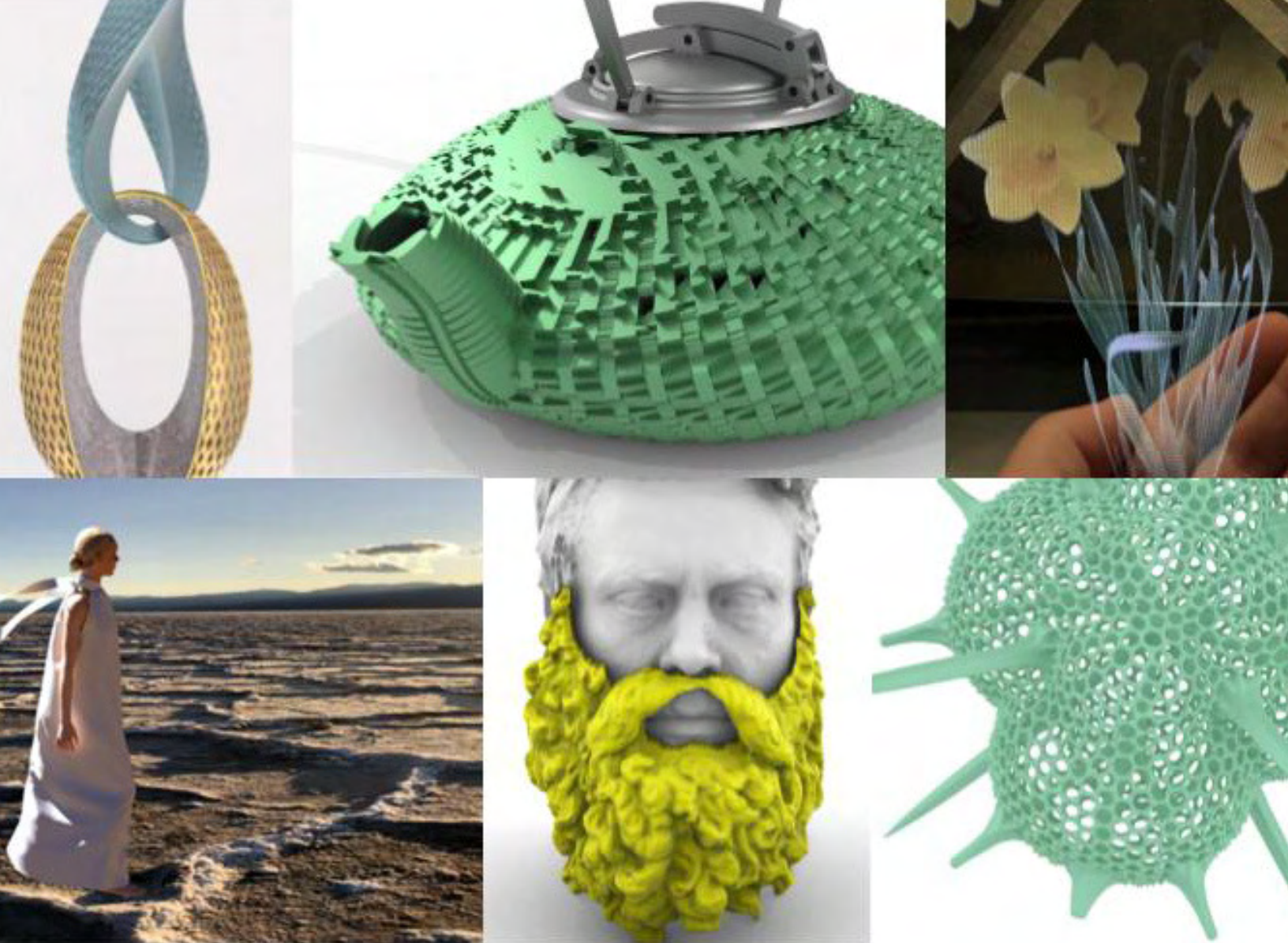




# Digital Fabrication and Parametric Design at Appalachian State University

## Contents

<b>Exhibition Statement.....</b>	<b>3</b>
<b>Exhibition Concept.....</b>	<b>4-6</b>
<b>About DigiFab.....</b>	<b>7</b>
<b>Adam Adcock.....</b>	<b>8-9</b>
<b>Andres Tellez.....</b>	<b>10-11</b>
<b>Andrew Bailey Arend.....</b>	<b>12-14</b>
<b>Chelsea Helms.....</b>	<b>15-16</b>
<b>Derek Eggers.....</b>	<b>17-18</b>
<b>Frankie Flood.....</b>	<b>19-20</b>
<b>Mark Nystrom.....</b>	<b>21-22</b>
<b>Nicole Villarreal.....</b>	<b>23-24</b>
<b>Richard Elaver.....</b>	<b>25-26</b>
<b>Travis Donovan.....</b>	<b>27-28</b>
<b>Educational Activity.....</b>	<b>29</b>
<b>A Brief History of CAD.....</b>	<b>30</b>
<b>Behind the Scenes.....</b>	<b>31-35</b>



## EXHIBITION STATEMENT

Digital design and fabrication technologies have radically transformed the way artists and designers conceive and produce work. This exhibition explores how digital tools for design and fabrication are being utilized and taught by contemporary artists, designers, and architects, and how those tools influence the work being produced in various fields.

The exhibiting artists include educators from the Departments of Art, Applied Design, and Sustainable Technology & the Built Environment. The connecting link between all of the faculty is the use of digital tools for creative work and problem solving. While the tools used are similar (including 3D modeling software, 3D printing, and CNC machines), the application of those tools varies greatly among disciplines. This exhibition highlights that diversity in both subject and output, featuring two-dimensional images, sculptural objects, and architectural projects.

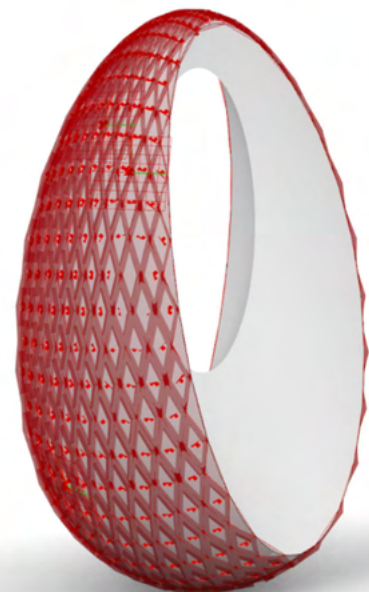
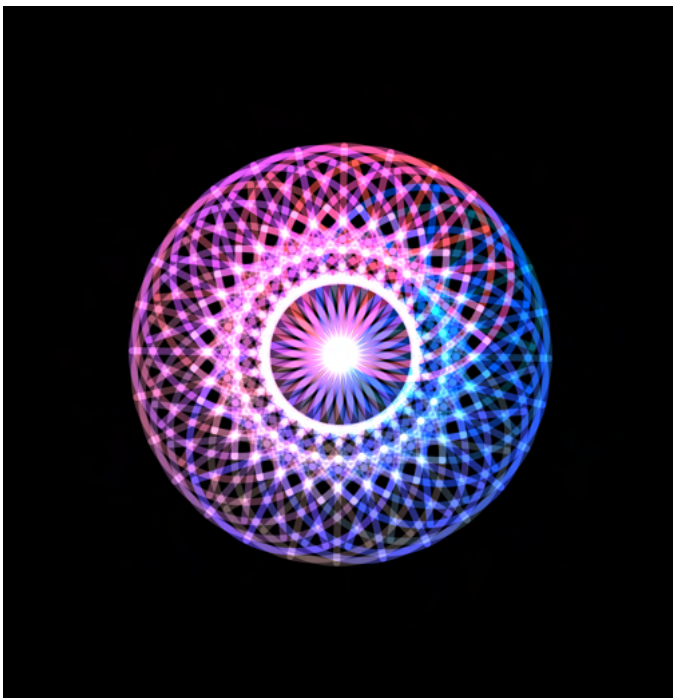
# EXHIBITION CONCEPT

How are digital tools being utilized and taught by contemporary artists, designers, and architects?

How do these tools both facilitate and influence the work being produced in these fields?

A group of faculty from diverse disciplines at Appalachian State University has come together based on their shared use of digital design and fabrication technology, in the **TRANSFORMATIONS** exhibition on view at the Turchin Center for the Visual Arts; the installation showcases new work using those tools in unique ways.

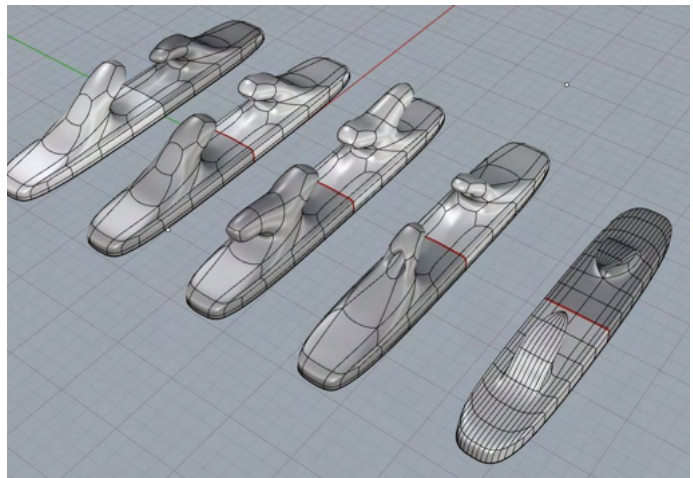
The group includes educators from the Departments of Art, Applied Design, and Sustainable Technology and the Built Environment. The connecting link between all of the participants is the use of digital tools for creative work and problem solving. While the tools may be similar (including 3D modeling software, 3D printers, CNC machines, etc.), the application of those tools varies greatly between fields. The goal has been to create an exhibition which highlights that diversity in both subject matter and formal output. This will range from two-dimensional images to sculptural objects.



# EXHIBITION CONCEPT

Because all of the participants are educators, they have include a didactic aspect of each work in order to share the 'how' behind their practice. Rather than purely exhibiting the end-product of their efforts, the intention has been to make this exhibition about the processes as well as to describe how the works were realized. There is much to emphasize regarding ideation, design process, production methods, and material exploration.

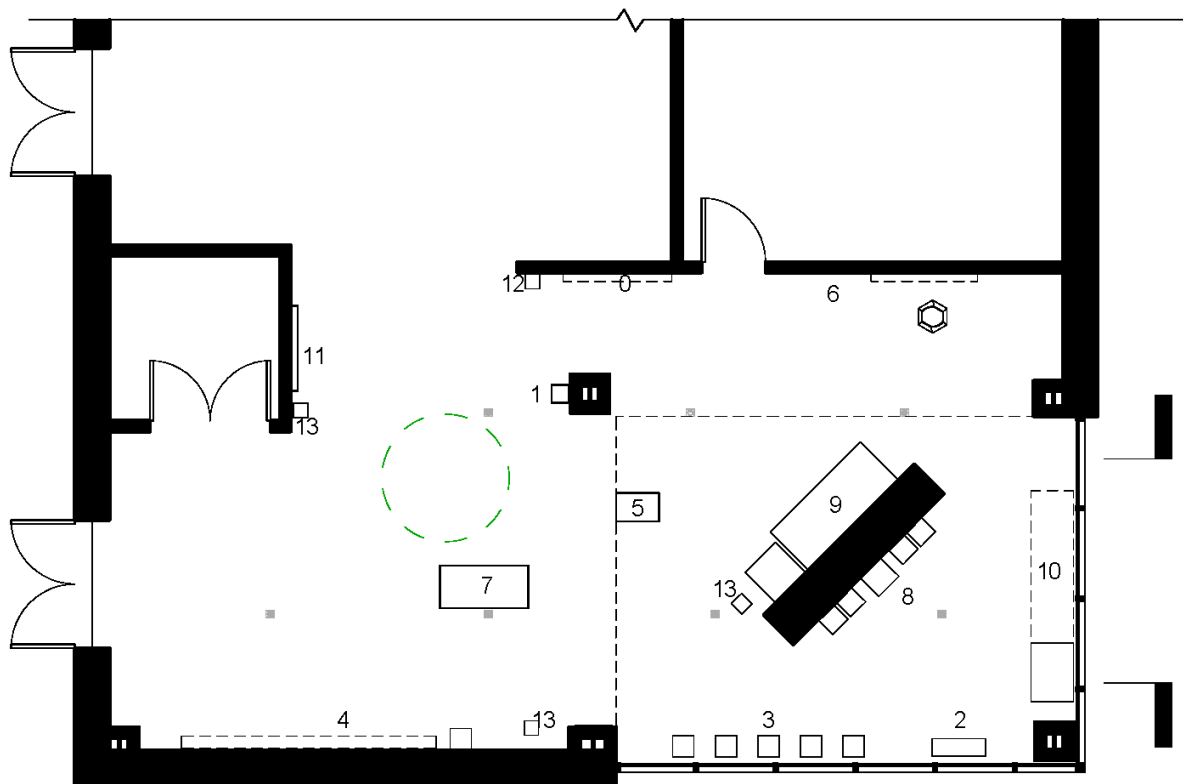
Each artist includes new work developed for this exhibition. Each of those works will have an accompanying explanatory didactic. These may include, a poster showing the development and process(es) behind the work, a video showing the inspiration and technology used to make the work, and/or samples of developmental steps in making the work. The goal is to show experimental work and to connect the dots from concept to execution for the viewer, illuminating the methods behind the magic.



# EXHIBITION CONCEPT

This group of educators has been working together for the past two years to collectively learn new software and share tools and techniques related to digital fabrication and generative design technology.

**TRANSFORMATIONS** is their first exhibition as a group. The concept for the exhibition was developed during the Fall 2021 semester; the group developed the work in a shared process throughout Spring 2022, finalizing the pieces over the summer.



① Level 1  
1/8" = 1'-0"

**A P P S T A T E**

DigiFab



## ABOUT DIGIFAB

App DigiFab, the Digital Design and Fabrication Learning Community at Appalachian State University, is a group of faculty exploring the professional and educational use of computer-aided design (CAD) and digital fabrication hardware used for three-dimensional design, visualization, and fabrication.

The group includes the following members from the departments of Fine Arts, Applied Design, and Sustainable Technology & the Built Environment, who explore multiple applications related to digital design, fabrication, and representation.

# ADAM ADCOCK

## Biography

**Adam Adcock** is a mixed-media sculptor in his limited free time. He has a BFA (2002) from Appalachian State University and an MFA (2007) from East Carolina University. He is employed at Appalachian State University as the Laboratory Operations Manager for the Department of Art.

Adam enjoys being around an environment of creative energy and loves to share information with colleagues and students. His sculptural works range in scale from hand-held to large outdoor public works; most are somewhere in-between.

He creates mostly non-representational sculptures because he greatly enjoys the freedom to appeal directly to the viewer's imagination and visual associations. The materials that are most common to his sculptures are steel, wood, cast metals (iron, bronze, aluminum), concrete, fiberglass, clay, and stone, as well as other natural found elements.

Adam currently lives in Banner Elk with his wife and 3 children. He considers the mountains of North Carolina to be the most beautiful and inspiring landscape, and feels very fortunate to be able to call it home.





# ADAM ADCOCK



# ANDRES TELLEZ

## Biography

**Dr. Andres Tellez** (he/him/his), is a designer, researcher, and educator who is passionate about Design and Learning.

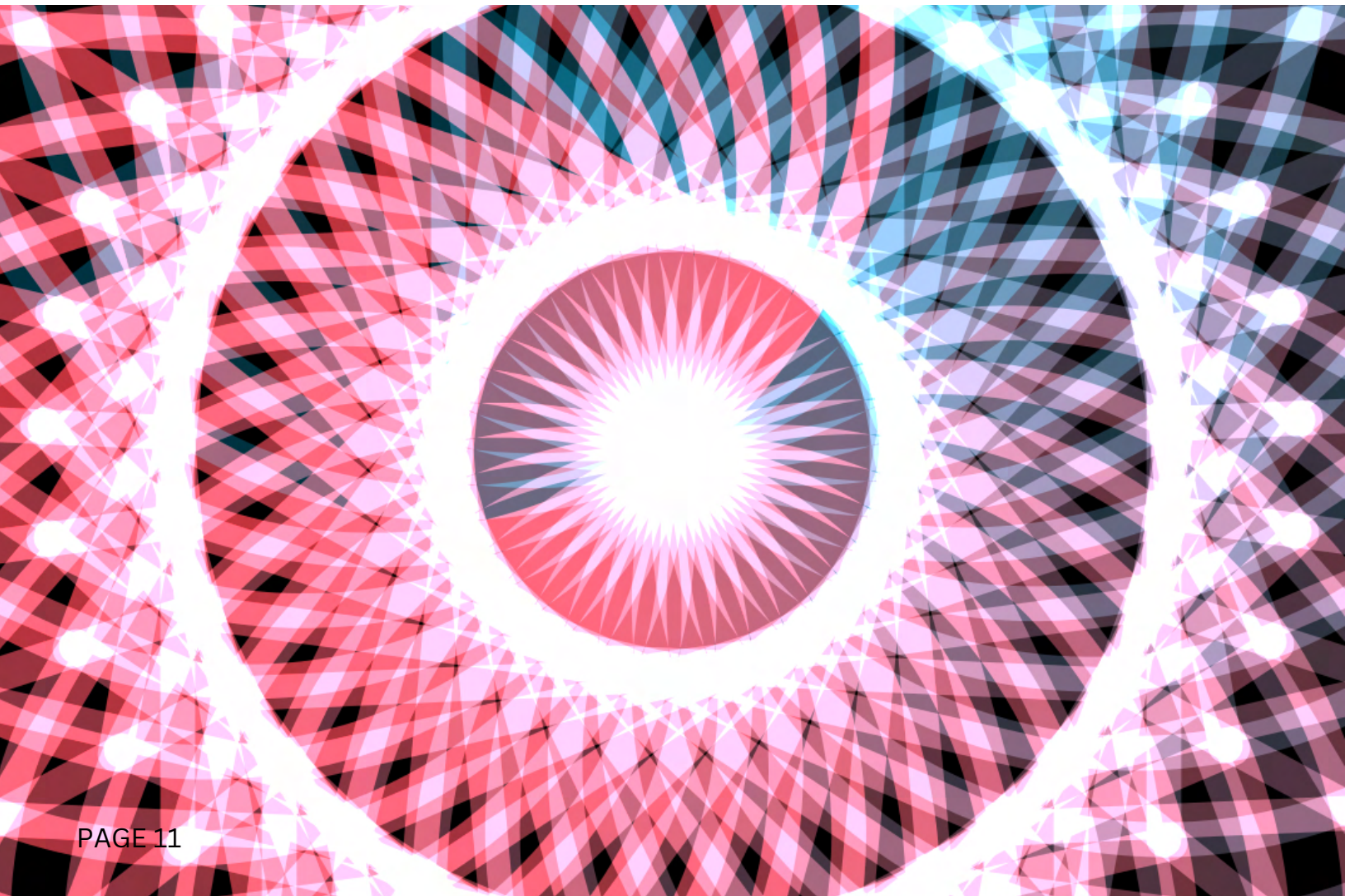
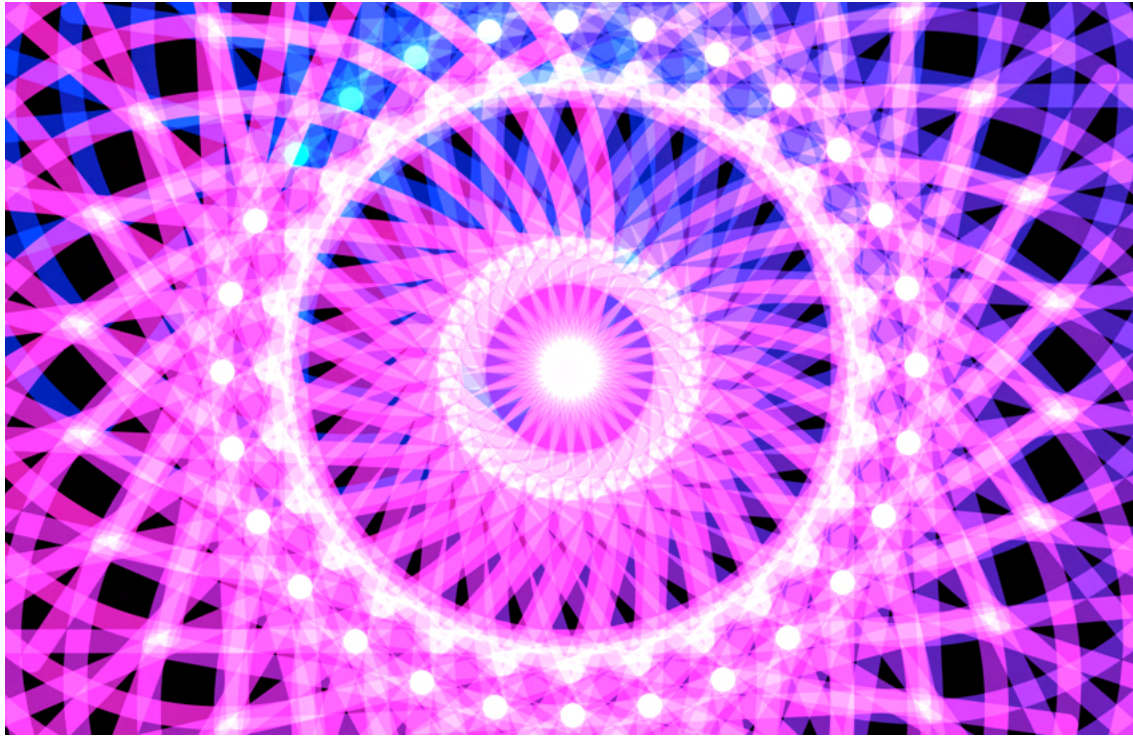
Dr. Tellez is an Assistant Professor in the Department of Applied Design, where he coordinates and teaches foundational design courses. Students are introduced to principles and elements of design in 2D and 3D where they acquire basic skills for digital representation.

In his research, Dr. Tellez has explored topics that lie in the intersection of Design and Learning, such as Diversity, Equity, and Inclusion in design education, empathy development in industrial design programs, and design thinking as a problem-solving strategy for non-designers. Additionally, his work also intends to bring a design perspective into interdisciplinary initiatives that address complex and systemic issues.

Dr. Tellez holds a Ph.D. in Design from North Carolina State University, a Master's in Education from Universidad de los Andes (Colombia), and a Bachelor's in Industrial Design from the same university.



# ANDRES TELLEZ



# ANDREW BAILEY AREND

## Biography

**Bailey Arend** (b. 1987 Anchorage, Alaska) is an artist who explores relationships between body, action, material, and ecology. His work generally takes form as sculpture and also touches on performance, drawing, and photography.

He has been awarded residencies and fellowships including the Bemis Center for Contemporary Arts, the Sitka Center for Art and Ecology, and the Odyssey Center for Ceramic Arts. Bailey exhibits nationally including solo exhibitions at Lacuna Gallery in Minneapolis, MN, the International Gallery of Contemporary Art in Anchorage, AK, the Bunnell Street Arts Center in Homer, AK, and Claymakers in Durham, NC.

Bailey Arend received his MFA from Alfred University in 2016. He is currently a Lecturer and Lab Operations Assistant Manager for the Art Department at Appalachian State University.

# ANDREW BAILEY AREND



# ANDREW BAILEY AREND



# CHELSEA HELMES

## Biography

**Chelsea Helms**, NC RID, NCIDQ, IDEC, IIDA, is a designer, practitioner, and educator. She is a North Carolina Registered Interior Designer, a certified interior designer [NCIDQ Certificate #34322], an Educator Professional of the International Interior Design Association [IIDA], and a LEED Green Associate.

Chelsea has a unique and diverse experience in industry, including working in commercial design and construction. Her academic teaching experience has focused on a nontraditional curricular program, the IDEXlab (Integrative Design Experience Laboratory), a multidisciplinary office/studio which designs, builds and commissions real projects for real clients in the community. This pedagogy and practice is an active continued research interest and an opportunity to stay hands on in the practice of utilizing Building Information Modeling (BIM) technologies, collaborative workflows, virtual reality, and design thinking.

Alumna of the Appalachian State University Interior Design program, Chelsea holds a Master of Science in Technology with a concentration in Building Science and a Bachelor of Science in Interior Design, both from Appalachian State University.



# CHELSEA HELMES





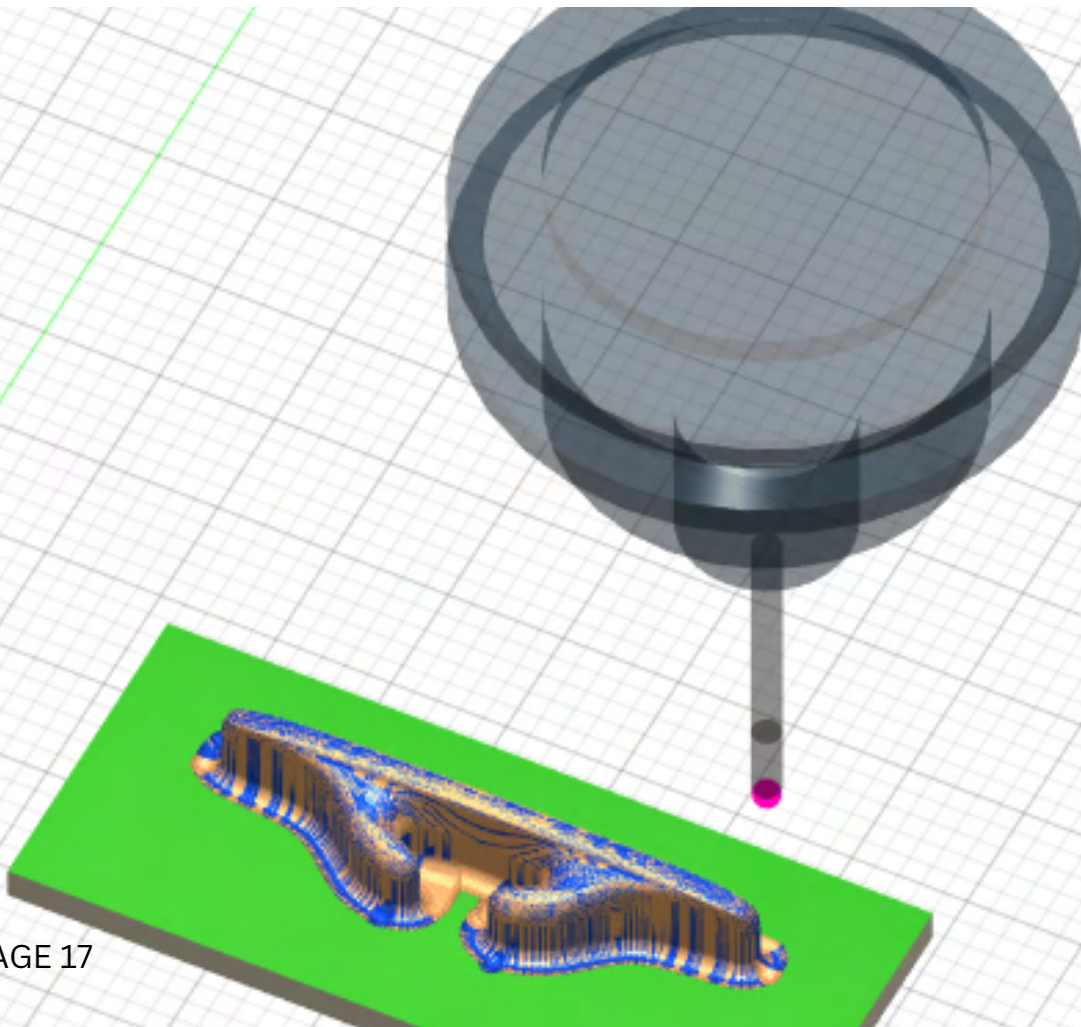
# DEREK EGGERS

## Biography

**Derek Eggers**, EdD serves as an Instructional Design Specialist, through CETLSS supporting faculty in the College of Fine and Applied Arts, University College, College of Business and the Graduate School in addition to teaching the Rapid Prototyping course in Applied Design at Appalachian State University.

His experience as an instructional designer combined with a background in industrial technology and engineering design provide a diverse skillset to compliment the CETLSS team at Appalachian State University. Derek earned a Doctorate of Education (Ed.D.) in Instruction and Administration within the Instructional Systems Design program at the University of Kentucky, a M.S. in Industrial Technology from Purdue, and a B.S. in Engineering Design Technology from East Tennessee State University.

Derek regularly teaches IND-3911 "Rapid Prototyping" in the Department of Applied Design in addition to other experimental courses. His interests include project based learning, digital design and fabrication, and environmental sustainability. He enjoys sailing, snowboarding, and kayaking with his family and friends.



# DEREK EGGERS



# FRANKIE FLOOD

## Biography

**Frankie Flood** is a Professor and area head of the Metalsmithing and Jewelry Design area at Appalachian State University in Boone, North Carolina. Flood previously served as Director of the Digital Craft Research Lab at the University of Wisconsin Milwaukee. He is a graduate of the University of Illinois, Urbana-Champaign, where he received his Master of Fine Art degree in Metalsmithing.

The potential that Craft has to serve local and global communities through design and fabrication has been the focus of Flood's recent research as he continues to combine traditional craft practice with digital technology. His recent research regarding 3D printed prosthetics and one of a kind adaptive devices has spread worldwide and his creation of the Digital Craft Research Lab has created new areas of study for students interested in digital fabrication.



# FRANKIE FLOOD



# MARK NYSTROM

## Biography

**Mark Nystrom** is an artist, designer, and educator whose work explores visualizations of complex information and includes drawings, installations, projections and screen-based projects.

Natural forces and data fuel his artistic practice. Hidden within them are patterns, forms, and meaning ripe for extraction, analysis, and interpretation. Like the translation of a text from one language to another, his work is a translation of information. His wind drawings, for example, are visual interpretations of wind conditions at a specific place for a certain period of time. Other projects include visual interpretations of carbon footprints and the news.

Mark's work has been shown in Austin, Boston, New York, Philadelphia, and other cities across the United States. He received a B.S. in Psychology from Virginia Tech and an M.F.A in Graphic Design from the Rhode Island School of Design where he was a two-time recipient of the Award of Excellence for outstanding work by a graduate student. He is currently a Professor of Graphic Design in the Department of Art at Appalachian State University.

Prior to joining the faculty at Appalachian, Mark was co-owner of a design studio in Virginia, an award winning photographer, and art director for several universities.



# MARK NYSTROM



# NICOLE VILLAREAL

## Biography

**Dr. Nicole Villarreal** is a fashion and textile designer, costume historian, researcher, and educator. She has a Ph.D. in Textile Technology Management from Wilson College of Textiles at NC State University. Her research interest is the convergence of 3D technology and fashion and textile design (both old and new), which allows her to combine her passions for garment construction, costume history, and 3D technology.

Dr. Villarreal wrote her dissertation on the use of 3D apparel software simulation for digitizing historic costume. She received her M.Sc. from The University of Texas at Austin where she wrote her thesis on the construction and conservation of the 'curtain dress' from the film *Gone With The Wind*. She conducted research for the exhibition of *The Making of "Gone With The Wind"* at the Harry Ransom Center. She has presented at symposia of the Costume Society of America (CSA) and at national conferences of the International Textiles and Apparel Association (ITAA).

After lecturing at UT Austin and NC State University, she is currently an Assistant Professor in Apparel Design & Merchandising (Department of Applied Design) where she teaches studio courses in basic and intermediate apparel design, and lectures on twentieth and twenty first century fashion and popular culture.



# NICOLE VILLAREAL





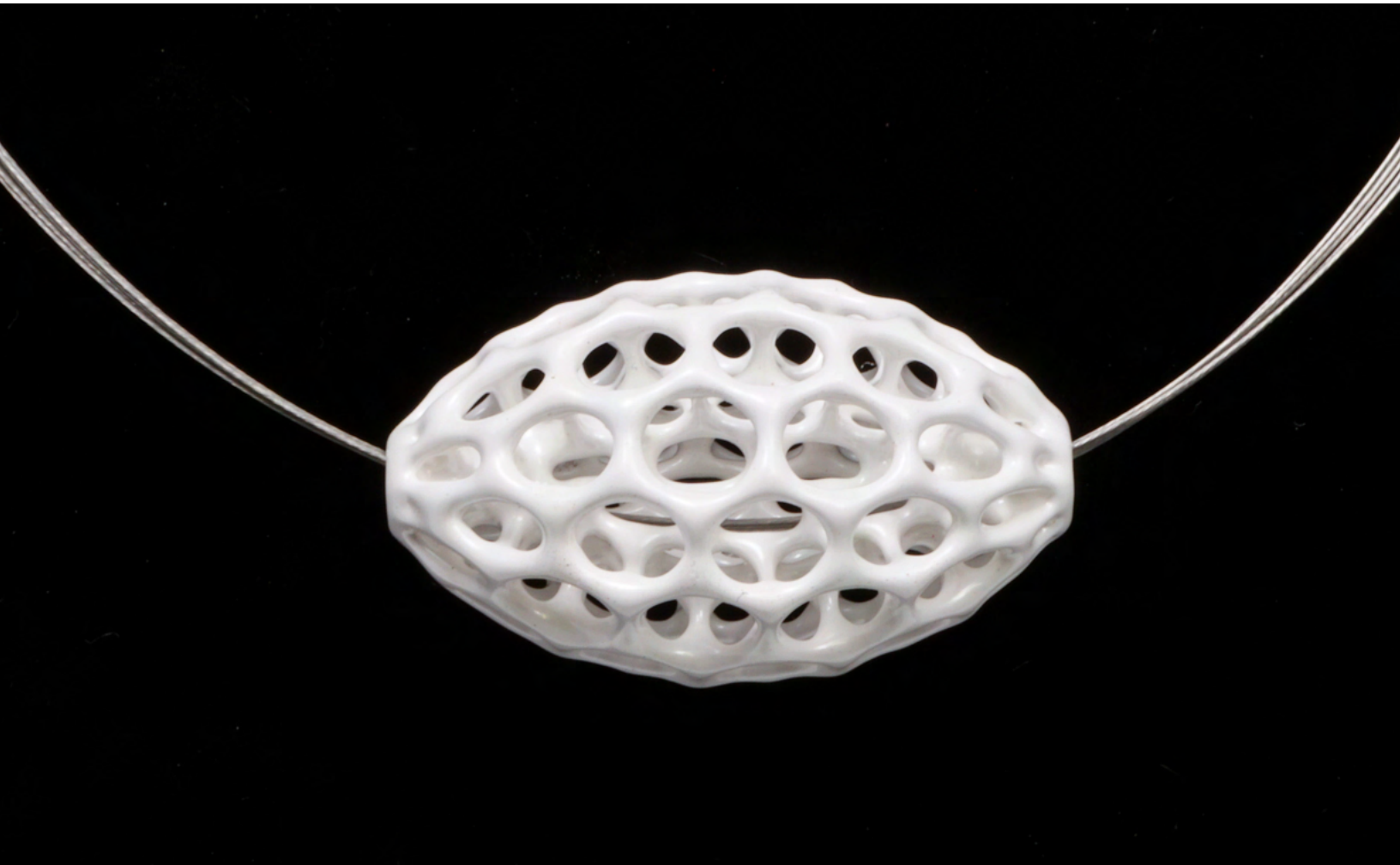
# RICHARD ELAVER

## Biography

**Richard Elaver** is a designer and metalsmith working in the overlapping spheres of art, design, and technology. In his work, Richard integrates the tools of industrial design with the craft of metalsmithing. He develops computer simulations of biological phenomena and uses them to create design objects.

Richard received his BA degree from the University of Wisconsin and his MFA from the Cranbrook Academy of Art. In 2006, as a Fulbright Fellow in the Netherlands, he worked with Droog Design. He is named on over 15 design patents and has helped develop products for companies such as Wilson Sports, 3M, and Craftsman.

Following several years of professional experience both as a jeweler and industrial designer, he is now an Assistant Professor of Industrial Design at Appalachian State University in Boone, North Carolina. His work has been exhibited nationally and internationally, including at: The Museum of Arts and Design, The National Ornamental Metal Museum, and the International Contemporary Furniture Fair.



# RICHARD ELAVER



# TRAVIS DONOVAN

## Biography

**Travis Donovan** is a North Carolina interdisciplinary artist and educator. Born in Banner Elk, North Carolina, Travis received a BFA in Sculpture from Appalachian State University in 2004.

Employing a range of techniques from traditional casting and fabrication practices to studies in kinetics and new media, Travis explores the relationships between objects, exaggeration, and identity. His current research investigates poetics and utilitarian materials of the South and their links to masculinity and class.

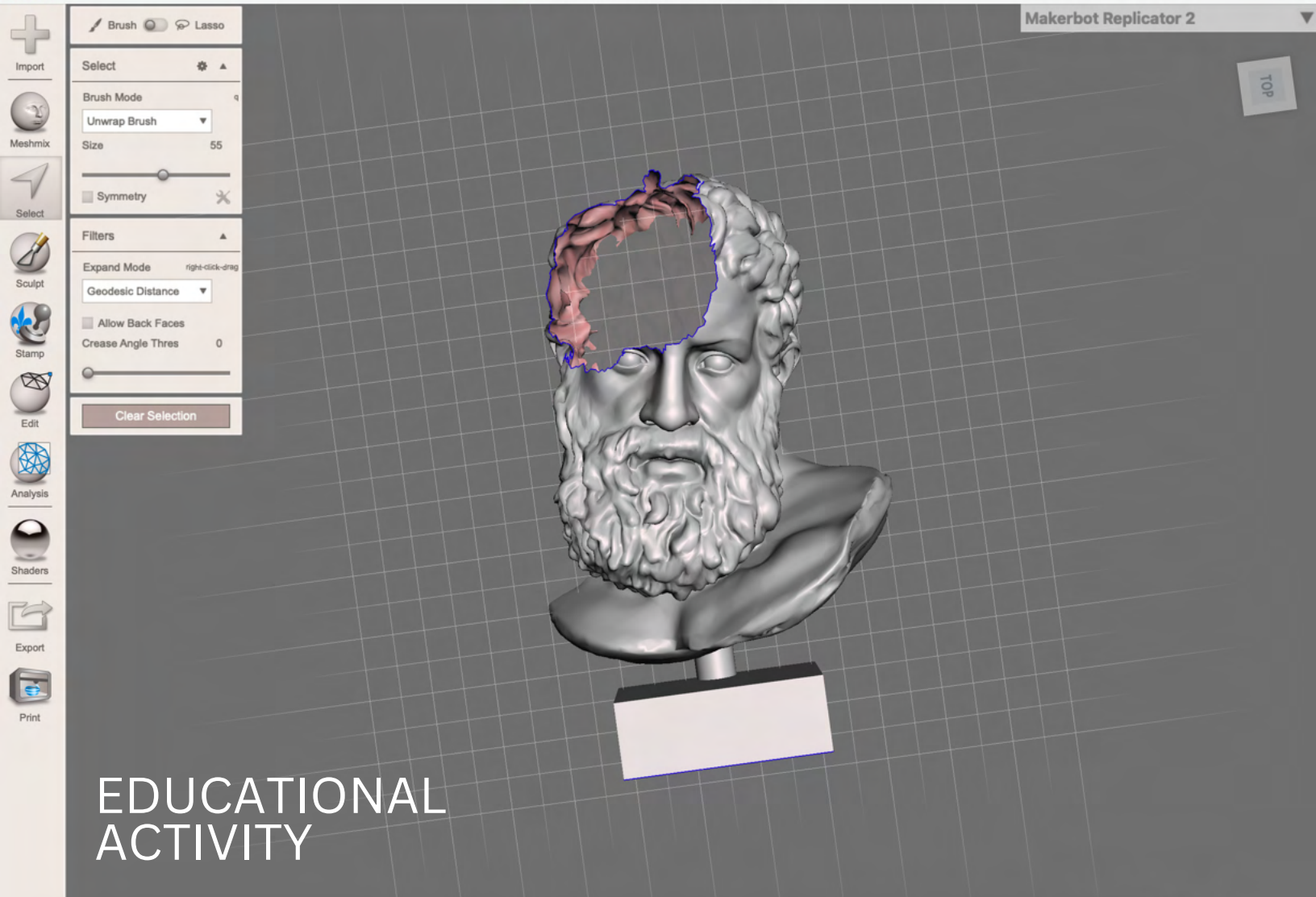
Travis became a North Carolina Artists Fellow after receiving his MFA from the University of North Carolina in 2011. He has exhibited nationally and internationally including solo shows at The William King Museum of Art and Neil Britton Gallery. His work is included in the permanent collection at The Yingge Ceramics Museum in New Taipei City, Taiwan.

Travis is Assistant Professor of Sculpture and Area Coordinator at Appalachian State University in Boone, North Carolina.



# TRAVIS DONOVAN





The artists in this exhibition are using digital technology to create real-life objects. They are also asking questions about how this process of creating artwork in a digital space could change the way we think about the objects and beings that take up physical space in the world around us.

Think of a simple object that you have nearby. Now try to draw that object without looking at it. Then, bring the object into your workspace and draw it as realistically as you can. What similarities and differences do you notice in your drawings? What might this say about the way we remember and relate to visual representations of the objects in our environment?



# CAD - A Brief History

According to a well-written article, *The History of Computer-aided Design and Computer-aided Manufacturing (CAD/CAM)* by Duncan Geddes for the technical team services division of Vita (Technical Foam Services and Custom Foam), CAD software is short for computer-aided design “used to support both engineers and designers across a range of industries, including architecture, automotive and aviation.” Geddes goes on to say that the term was initially used by an MIT researcher, Douglas T. Ross in the 1950s. Ross was then working on early military radar technology and computer display systems. One of the first uses of CAD was by Patrick Hanratty at the General Motors Research Laboratories. Hanratty developed Design Automated by Computer (DAC), which is thought to be the first CAD system that involved interactive graphics. This was the first commercial CAD/CAM software system, and involved a numerical control programming tool named PRONTO, which he developed in 1957. The first true CAD software was called Sketchpad, developed by Ivan Sutherland in the early 1960s as part of his PhD thesis at MIT. (<https://technicalfoamservices.co.uk/blog/blog-history-of-cad-cam/#:~:text=Initially%20used%20by%20Douglas%20T,technology%20and%20computer%20display%20systems.>) In spite of its commercial origins, this article is worth reading in its entirety for a complete introduction to the history of CAD technology. Another good infographic timeline can be found at: <https://partsolutions.com/60-years-of-cad-infographic-the-history-of-cad-since-1957/> This post is by Adam Beck the Director of Marketing at CADENAS PARTsolutions; the article has a full listing of linked references at the end for those who want to do further research.

Visit the official  
**Transformations**  
website:

<https://sites.google.com/appstate.edu/digifab-transformations>

# BEHIND THE SCENES

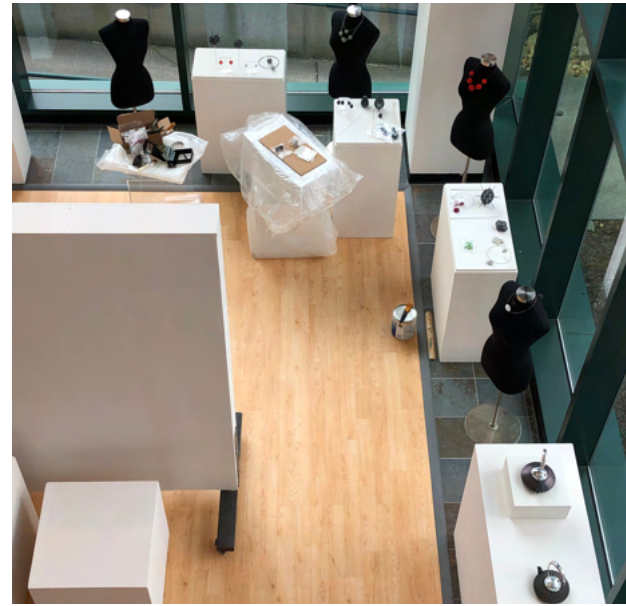


# BEHIND THE SCENES





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THANK  
YOU

FROM THE TURCHIN CENTER FOR THE VISUAL ARTS

The Turchin Center for the Visual Arts at Appalachian State University engages visitors from the university, community, nation and beyond in creating unique experiences through dynamic and accessible exhibition, education, outreach and collection programs. These programs inspire and support a lifelong engagement with the visual arts and create opportunities for participants to learn more about themselves and the world around them.

SHARE YOUR WORK WITH US AT #TCVAATHOME !

