

PORTFOLIO

JAYSON R. MARGALUS

2023



DESIGNER & MAKER

Maker, designer, computer scientist, and outdoorsman who creates objects and games. Faculty Director of Innovation at DePaul University's Idea Realization Lab(s), and Professional Lecturer and Director of Industrial Design in the School of Design in the Jarvis College of Computing and Digital Media.

JAYMARGALUS.COM

INDEX CONTENT

MY ETHOS 05

What drives the work that I do, and how I approach the design and creative process.

PRODUCT DESIGN 08

Some of the objects that I've designed over the 15 years as a creative professional.

MAKERSPACES 14

I've built and managed four separate makerspaces over the years. These communities are some of my life's work.

EDUCATION PROGRAMS 20

I've created a BFA, certificate programs, and professional development programs for international corporations.

GAME DESIGN 24

My first big creative break came when I joined a small independent game company and started designing games.

THANKS

30



IT'S ABOUT THE WORK

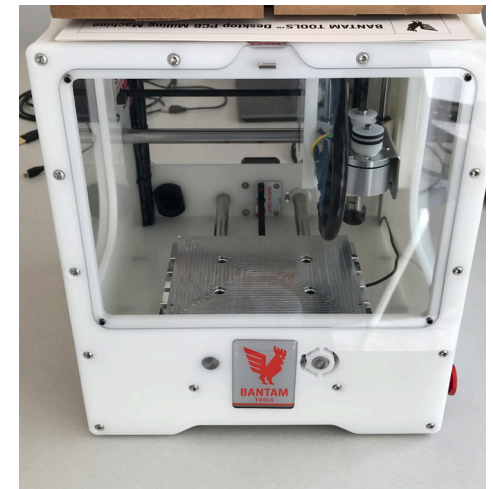
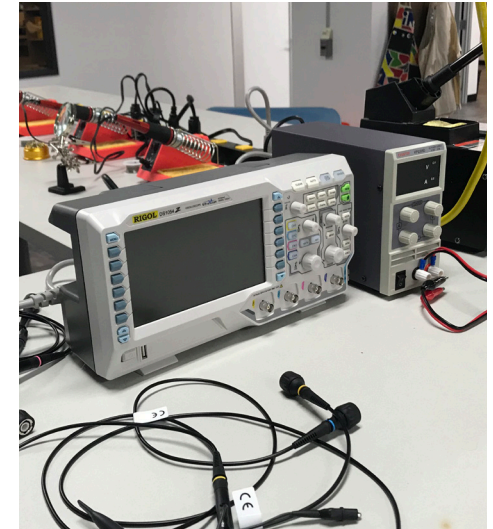
My work spans the space between atoms and bits, creating experiential products that blur the lines between physical and digital. As a cross-disciplinary designer and entrepreneur I draw from industrial, product, and game design to create innovative objects and communities of practice.

At DePaul, this ethos manifests itself in the two makerspaces that I created and direct. With over 20 employees and a design consulting team of six students, my studio has developed products ranging from medical devices to electronic toys. I've designed products with oncologists at University of Chicago, and engineers at corporations like Bosch and Caterpillar. The objects built through these engagements focus on rapid prototyping and digital-physical technology, and the promise this technology has to give people the agency to remake the systems around them. Our most recent project is an inexpensive microscope that can be fabricated using simple components and 3D printers in field hospitals in Africa.

Outside DePaul, I run a studio that makes games and objects that explore alternative game controllers and platforms. My work has been featured in game publications like Gamasutra, Venus Patrol, and Destructoid as well as the Chicago Tribune and National Public Radio. For the last five years, I've designed an electronics toy every year for Chicago's largest hacker conference. This project is part of an emerging trend amongst hackers called Badgelife, recently covered in Vice. It also touches on an emerging trend in the game design community that can be found most prominently at GDC alt.ctrl. My work on these electronics toys spans hardware design, game design, firmware programming, and small-scale manufacturing. Approximately 1,700 of the toys are created every year.

Sidenote.

The maker ethos is a Do It Yourself (DIY) attitude. Being able to understand complex systems and re-imagine them is fundamental to my design practice. Every designer and entrepreneur should have the capacity to understand, question, and ultimately remake their environment.



PROFILE

ABOUT ME

I got my start as an entrepreneur and designer as a junior high kid by building and selling websites for local businesses. After my undergraduate years in political science and a brief stint working toward a law degree, I decided my skills were better suited for building things. That epiphany began a 15 year journey that I'm still on. In 2008/9 I started my own software company and, in parallel, a game studio and my first makerspace.

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My experience making and selling video games led me to teaching game design at DePaul University -- one of the nation's top programs -- where I created a course in the early 2010's called "The Business of Indie Games." I quickly discovered my love for teaching.

In 2015 I went to work for a big data company in Silicon Valley, but the itch to teach returned, so I went full time at DePaul. After joining, I was enlisted to develop our makerspaces, and then subsequently created an industrial design degree and student consulting group. This work has gone on to receive national recognition, including DePaul being named one of the world's best "Maker Schools" by Newsweek and MAKE: Magazine.

I am enchanted by objects, our built environment, and teaching people how to create their own products and the businesses that sell them. I currently have the privilege of serving my community through a non-profit makerspace that I run in Lockport, IL, that hosts several businesses in the digital and product arenas. I also run a design consultancy that works with schools in Chicago to develop labs and curriculum that educates students and teachers on design thinking, prototyping, and making. As my work grows, I continue to look for ways to increase my capacity to serve others.

EDUCATION

M.S.	Human-Computer Interaction, DePaul University, 2021 with distinction
B.S.	Political Science, North Central College, 2006
Pratt	Furniture Design, in progress.
Cornell	Product Design & Development, certified.
MIT	Making Makerspaces, certified.
Harvard	Thinking and Learning in the Maker-Centered Classroom, certified.

IT'S ABOUT THE STUDENTS

My first mentor at DePaul was the founder of the College of Computing, Helmut Epp. Dr. Epp gave me a great piece of advice when I started: "It's always about the students. Get that right, and everything else follows."

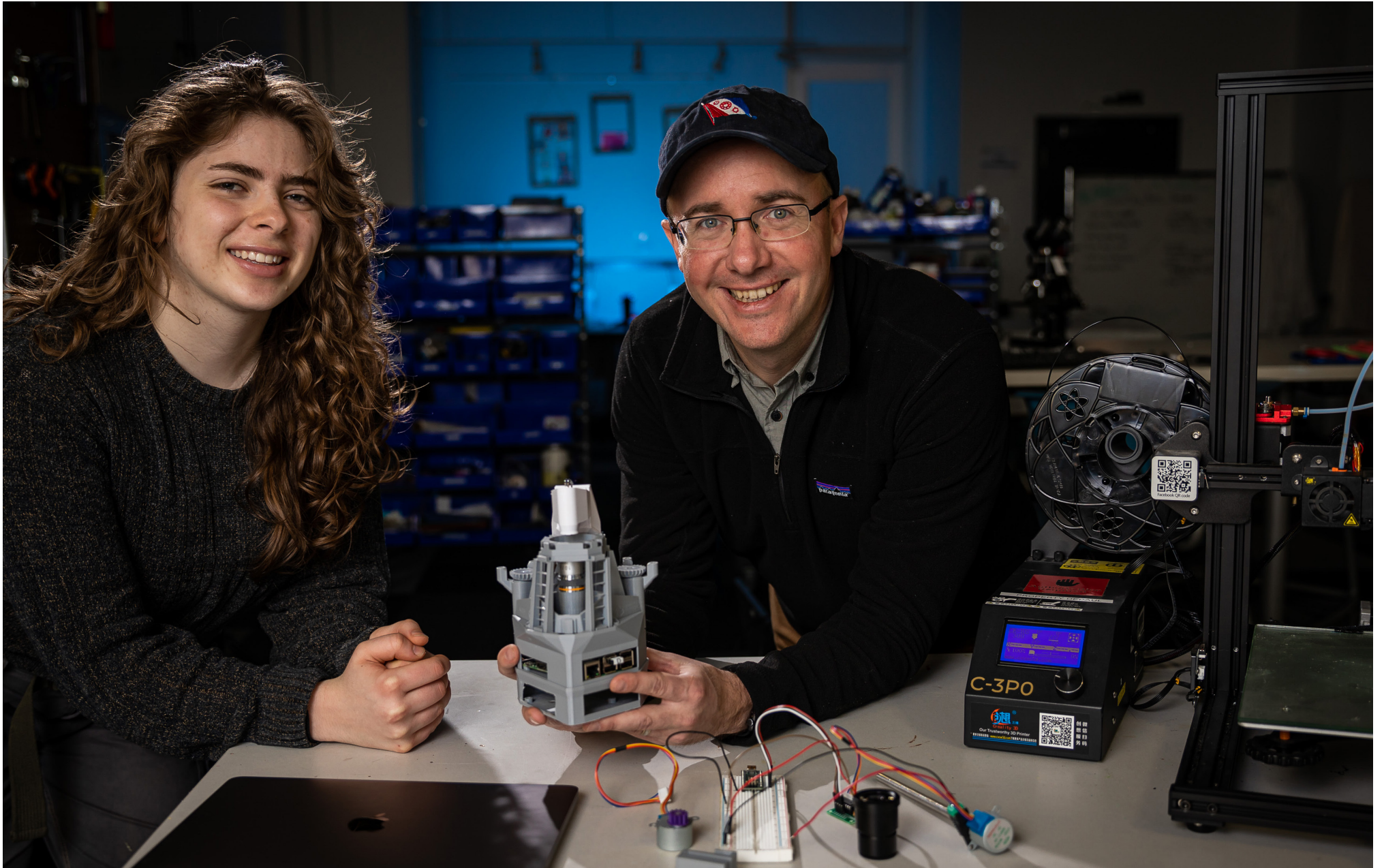
It really is all about the students. I've built this ethos into nearly everything I do in academia. The maker-spaces I've built are run, day-to-day, by student lab managers, specialists, and moderators who've been trained by me to manage themselves, create project proposals, and teach lab workshops. The student consulting team that I created also has a student manager who I've taught to navigate burndown charts, develop business model canvases, and communicate with clients. I run multiple independent studies every year -- all driven by student concepts.

Students know when you trust them, and excel in environments where they're enabled to stretch their abilities. In turn, they require the kind of direction and education that provides the mental models and systems to achieve (and refine) their goals. This, I believe, is a more difficult kind of teaching. It requires the educator to take their ego out of play and let things happen. It requires us to pay attention and empathize, and in doing so, know when to step in and when to step back.

Arcade Cabinet >

In the summer of 2022, my student consulting team designed and fabricated an arcade cabinet for our college's namesake, Eugene Jarvis -- a notable figure in game design who made (among other games) Cruisin' USA, Defender, and NARC. Jarvis was presented with the arcade cabinet during a ceremony for his generous donation to the college. The students (pictured) fabricated the cabinet from scratch in our facilities, handled the software development for the cabinet, and completed all of the electrical engineering using an open source microcontroller platform.





PRODUCT DESIGN

MOBILE MICROSCOPE

The mobile microscope project is an ongoing collaboration with oncologists at University of Chicago. The design prompt for this project was to build a device that costed approximately \$200, produced imaging equal to that of a \$250,000 microscope, could be fabricated on-site in field hospitals if necessary, and could take whole-slide images. I directed and conducted much of the early-stage parallel prototyping, design, and fabrication of the first model which took an available open source design and improved on it for our needs. This is an ongoing collaboration. The microscope is now being deployed in field hospitals across Africa.

Client Name

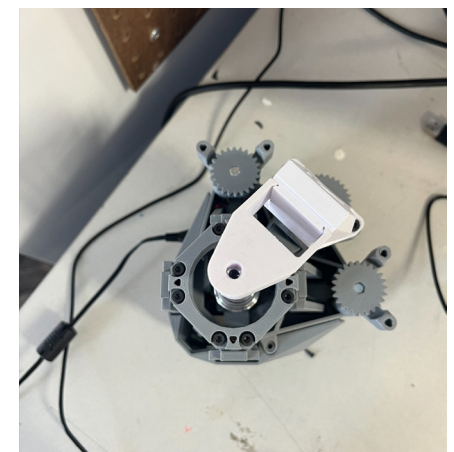
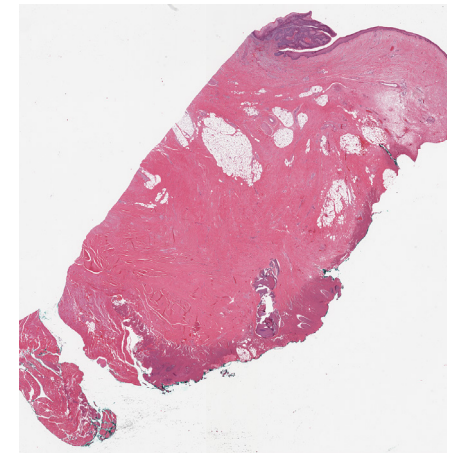
University of Chicago

Year

2022 - present

Project Description

Inexpensive, 3D printed microscope that costs approximately \$200, and captures images equal to those of a \$250,000 microscope by leveraging machine learning and artificial intelligence.



Education

A DePaul Professor Uses 3D Printers To Make Face Shields For First Responders

A group of Chicago-area educators pitched in to dream up new ways to create protective face shields for health care workers.

By Kate McGee

May 2, 2020, 5:59 a.m. CT

 LISTEN 4:34



PRODUCT DESIGN

DISTRIBUTED FABRICATION

Starting as an initiative out of DePaul, I led a network of individuals from various universities, libraries, and other institutions around Illinois to address the immediate, critical need for personal protective equipment (PPE) in Illinois. Within our network, we produced over 100,000 face shields primarily for doctors, nurses, and first responders from 2020-2021. We collaborated with groups from, among dozens of other places, Provident Hospital, University of Illinois Health (Chicago), Cook County Hospital, Swedish Covenant Hospital, Weiss Memorial Hospital, Sinai Health System, and others.

Utilizing principles of distributed fabrication, localism, and rapid prototyping, we were able to produce and deliver face shields and other PPE when supply chains had broken down. Illinois PPE completed its work in 2021 after completing a last batch of the Solin Face Shield, a flat pack shield designed within

Sidenote.

The flat pack face shield design that our group created was eventually licensed and given to a commercial entity for wider fabrication and distribution. It continues to be produced as of 2023.

ILLINOIS PPE

our maker network. Our work was featured in NPR, Tasty Trade, the Chicago Tribune, MAKE: Magazine, and other outlets.

As part of this project, I collaborated on the design of an innovative flat pack face shield, and oversaw its manufacturing including sourcing the materials for its production and working with manufacturers to have a die made that could stamp the shield out.

Client Name

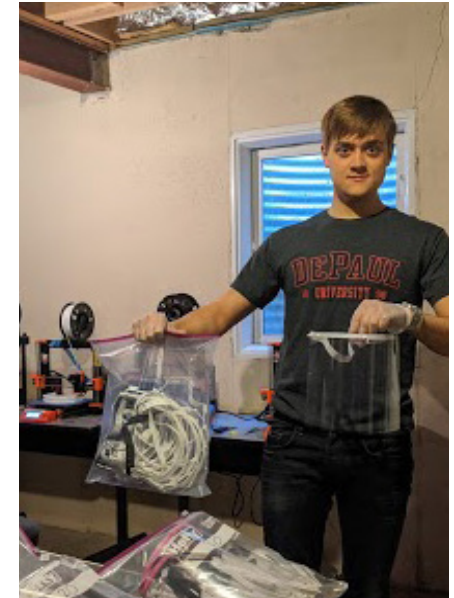
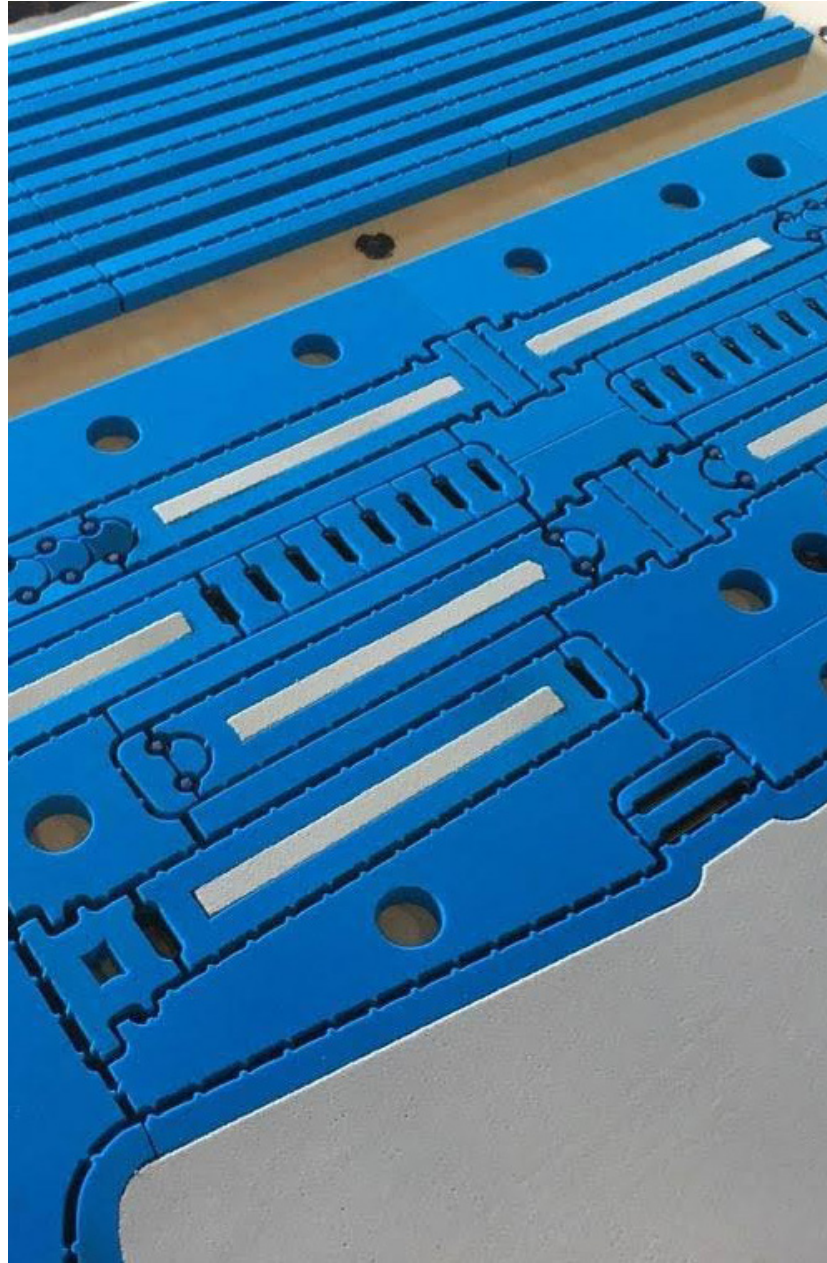
Hospitals and first responders across Illinois.

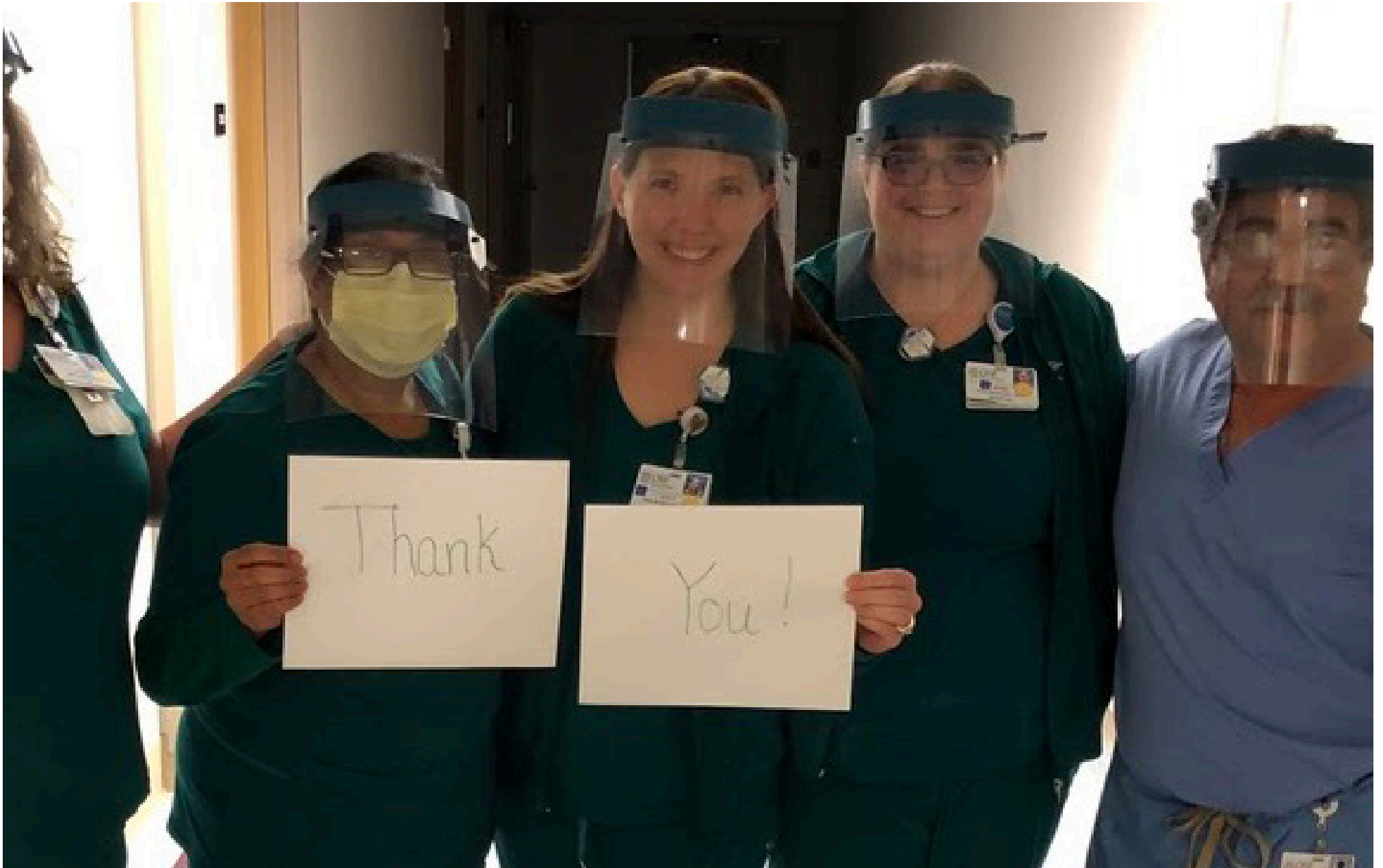
Year

2020 - 2021

Project Description

This project covered a wide range of skills that I've cultivated including elements of design, leadership, fundraising, and manufacturing.







MAKER - SPACES

IDEA REALIZATION LABS

Student-driven makerspaces and design studios

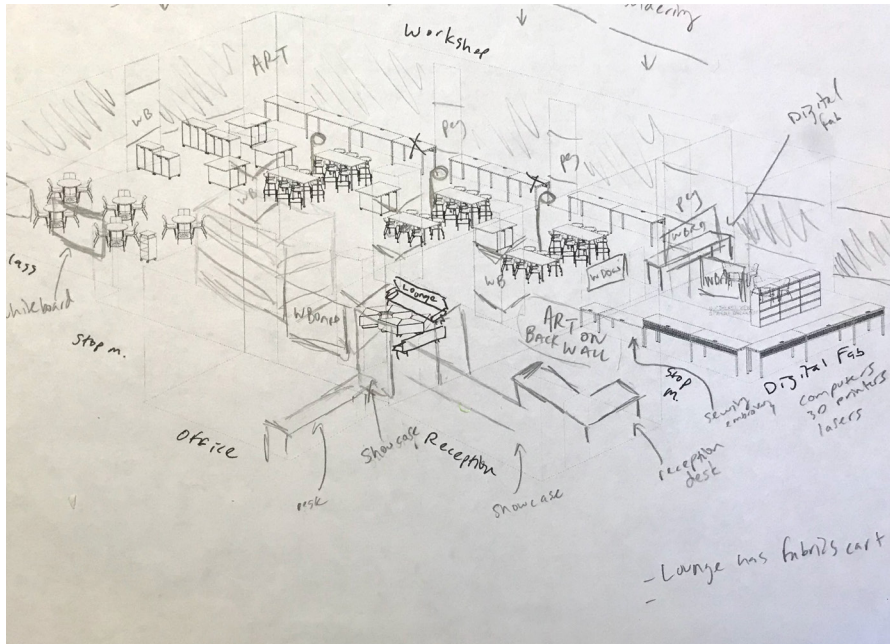
Employer

DePaul University

Year

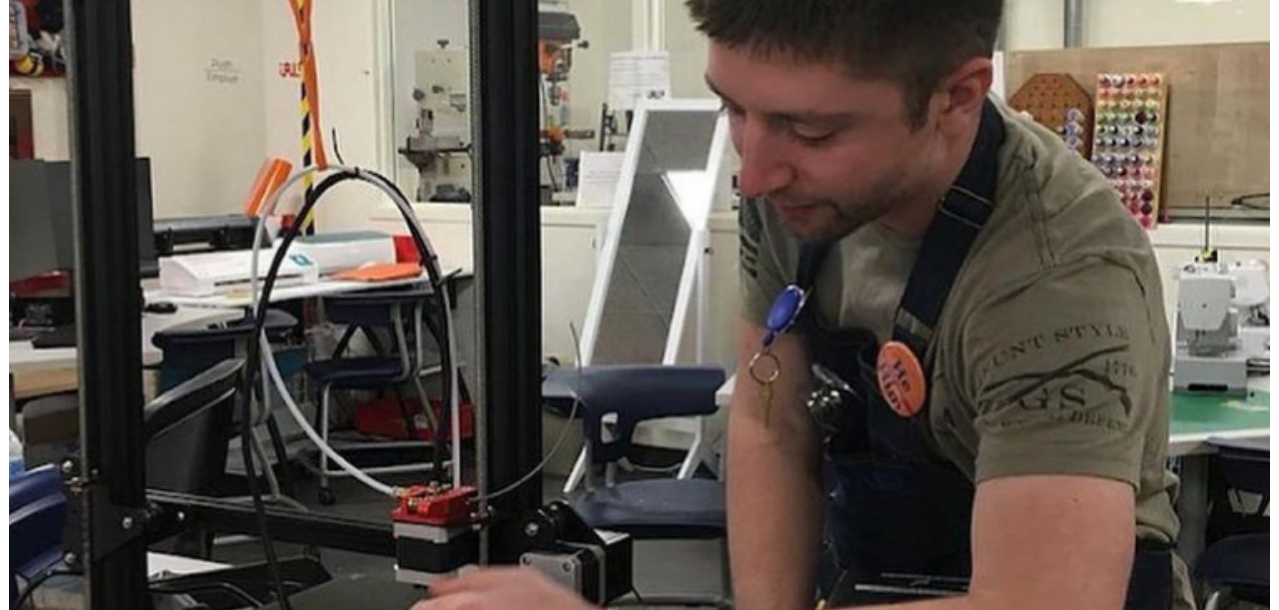
2017 - Present





Prior employees of mine now run makerspaces and innovation labs at the Illinois Institute of Technology and Northwestern University.





MAKERSPACES

REIMAGINING FABRICATION

Making things need not rely on complex supply chains spread across the world. Communities have needs that industrially designed and built objects cannot solve, because communities have their own unique needs and problems. What if the objects we consumed were designed, modified, and fabricated locally? What does a world where individuals have become active participants in the design and production of products look like?

Makerspaces pose an answer to that question. By providing education and access to digital fabrication tools and electronics platforms, makers are able to design their own files and fabricate them on the spot. Moreover, they're able to share those files with other communities of individuals, who are then able to remix the design to their own needs and then fabricate it themselves. This is distributed fabrication.

Distributed fabrication allows people to take control of the built environment, to remake it, and to reimagine it. In this emerging economy we unlock the latent creative potential of the everyday person, and everyone has the capacity to create.

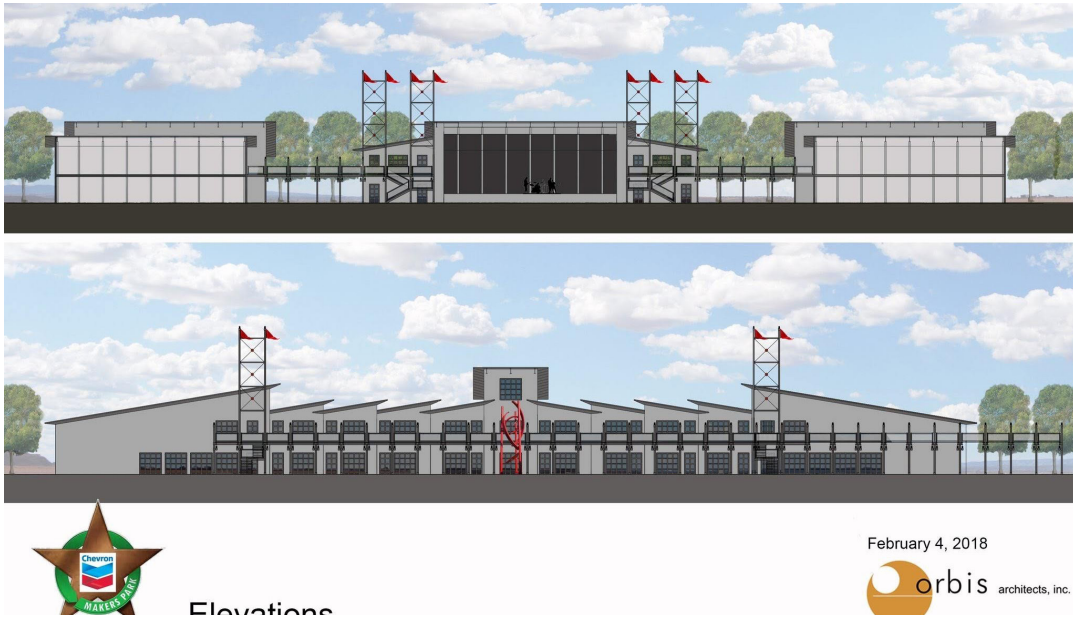
Sidenote.

The Illinois PPE project was the first at-scale glance at what distributed fabrication could offer. With over 100 participating groups, Illinois PPE was able to harness the power of turning bits into atoms, and produce over 100,000 face shields through localized nodes of individuals.

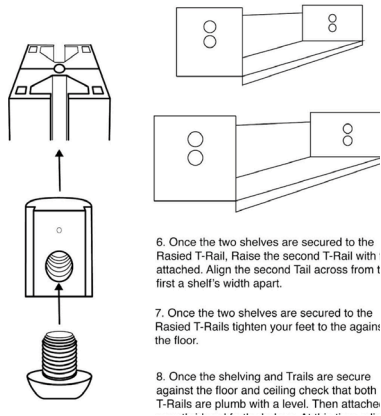
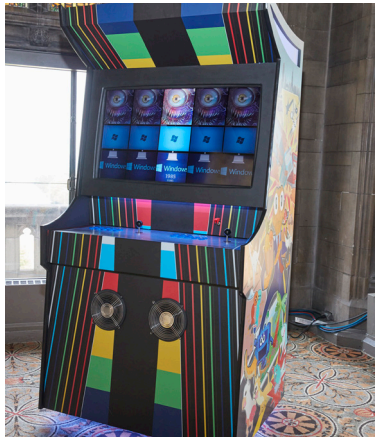
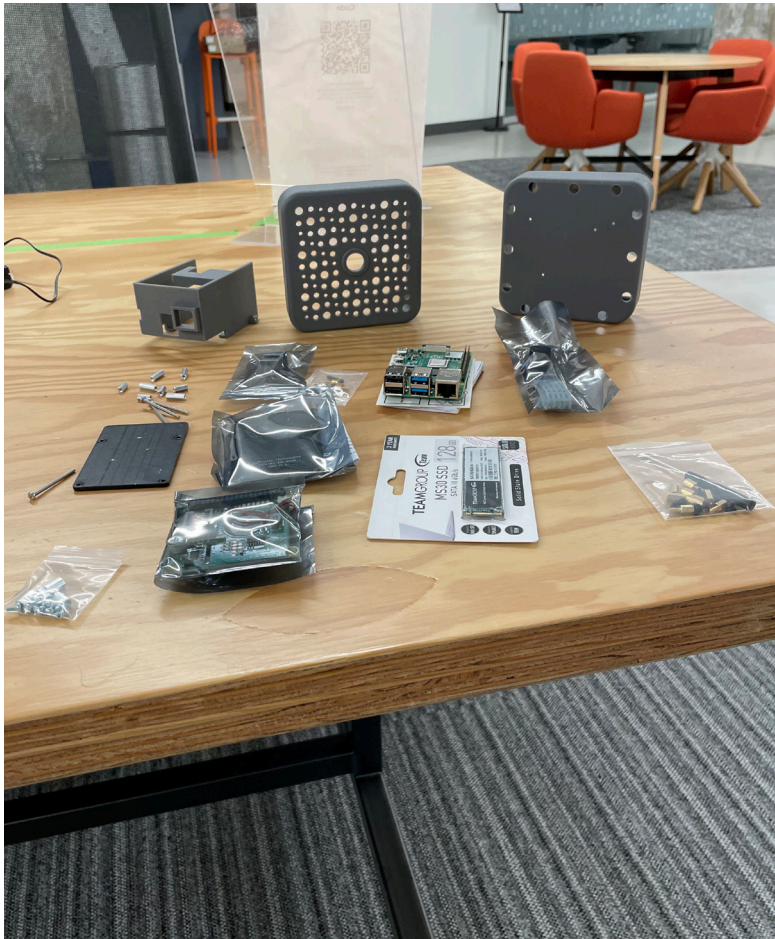
SPACELAB & WORKSHOP 88

Over the past 15 years I've founded and managed two non-profit makerspaces in the Chicago south suburbs. In my leadership capacity, I developed and ran hundreds of workshops, 1,000+ attendee events, designed and built interactive augmented reality exhibits, and international competitions.

This work has received attention from outlets like Chicago Public Radio, the Chicago Tribune, and Make: Magazine. Through these spaces, I've had the privilege to educate thousands on emerging technology and how to leverage it in their everyday lives.



EDUCATION PROGRAMS

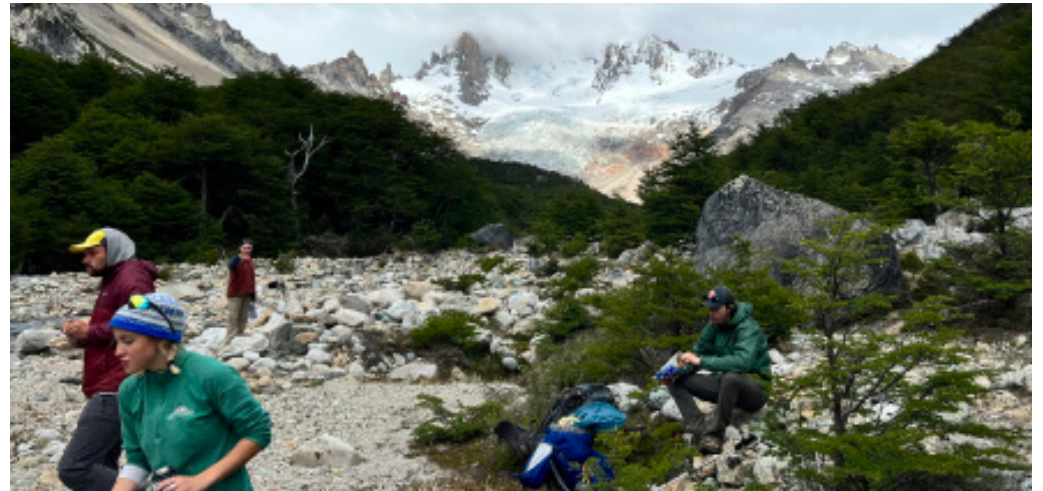


BFA INDUSTRIAL DESIGN

I wrote the BFA Industrial Design program with my colleagues Nathan Matteson, Eric Landahl, and Theresa Steinbach. The program launched in 2021, and currently has approximately 30 enrolled students. In addition to traditional industrial design practices, students are exposed to embedded systems design, as well as game, toy, and instrument design. In total, I have written eight new courses for the program including Metaphysics of Objects, Introduction to Industrial Design, Haptics, and Hardware Design Basics workshops.

In addition to writing and shepherding this program through the approval process, I've had to re-design our design and prototyping facilities to accommodate industrial design related work. This has included machine procurement, staff training, and related course development. In 2023, we also plan to expand the program to include partnerships with local manufacturing facilities.

Students in the Industrial Design program also have the opportunity to work on a consulting group that I developed in 2021. The consulting group has worked with clients ranging from Bosch to the University of Chicago to design and develop objects that act as portfolio pieces for the students.



Employer

DePaul University

Year

2015 - Present

EDUCATION PROGRAMS

The 1K Makerspace project was borne out of my work at Illinois PPE that explored a distributed fabrication model. In a continued exploration of what localized manufacturing could look like after the worst of the pandemic, I crowdfunded — and subsequently received corporate backing for — a project to install makerspaces in underserved schools around Chicago. Through the help of generous donors and Newark Electronics, we were able to procure CNC routers, 3D printers, computers, and electronics for five pilot schools.

As of December 2022, this project is still in its earliest stages. We have identified Catholic schools in Chicago that serve traditionally underrepresented populations in STEM, and are in the process of rolling out the equipment and curriculum to each school.

1K MAKERSPACE

What if distributed fabrication started in community spaces like schools, libraries, and churches? How can we build the future of making through direct engagement with the beating heart of local places? The 1K makerspace program seeks to build that future through one big real-life experiment.

Client Name

Chicago Catholic Schools

Year

2022 - 2023

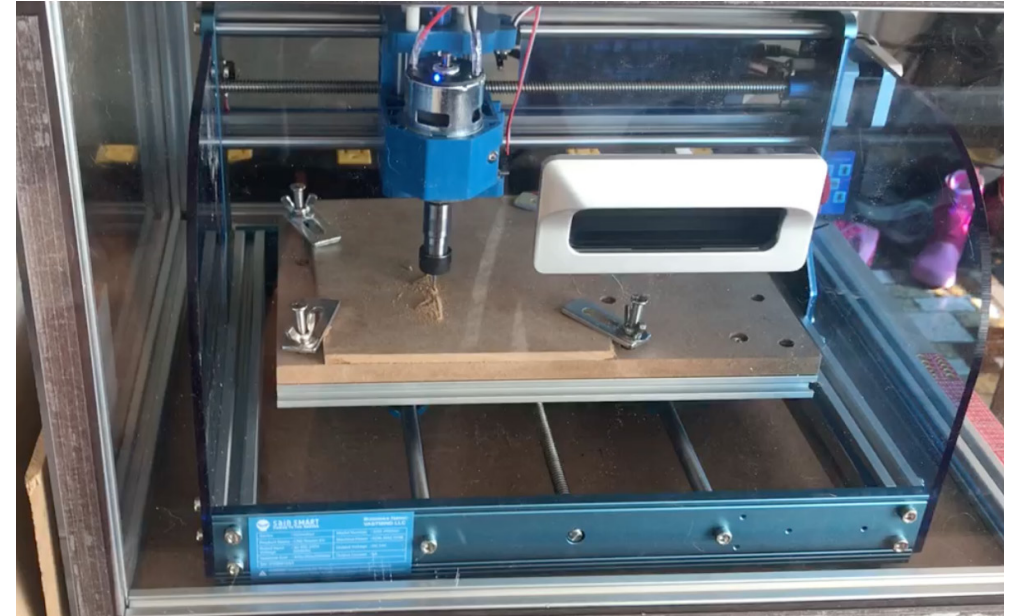
DePaul University Innovation Network 1K Makerspace Pilot

Makerspaces are community places that encourage, as Tim Ingold writes, “thinking through making.” As systems become more complex and difficult to navigate, makerspaces encourage practitioners to engage with systems to disseminate, tinker with, and ultimately hold a deeper understanding of them. They do this by: (1) giving access to the necessary tools to work with objects, (2) engaging in cross-domain transfers of knowledge through communal activities, and (3) empowering members to tinker and play in a low-stakes environment.



DePaul student Jenn Lawhead learns to solder in a workshop at the Idea Realization Lab makerspace.

According to the US Small Business Administration, makerspaces additionally address



GAME PORTFOLIO



HACKER CON 2021

This badge was done in collaboration with a student consulting group that I direct, as well as my friends Rudy Ristich and Rob Rehner. As with previous iterations, we began by consulting the individuals who direct the event, then quickly moving from their vision for a conference into a badge design that played on the year's theme. The design of the badge was informed by classic game console controllers, but put a twist on them by incorporating an accelerometer, LEDs, and an onboard speaker for feedback.

Students from my consulting group conceived of, designed, and then programmed games onto the badge. The badge featured a few innovations that the Badgeline community had not yet used, including over-the-air updates, onboard IRC communication, and command-and-control functions. In addition to managing the design team, I played a critical role in the manufacturing of the badge and managed the production run.

Year

2021



HACKER CON 2019

This badge was done in collaboration with a student consulting group that I direct, as well as my friend Rudy Ristich. As with previous iterations, we began by consulting the individuals who direct the event, then quickly moving from their vision for a conference into a badge design that played on the year's theme. The design of the badge included a speaker, microphone, accelerometer, and backlit LEDs. Our recently developed over-the-air firmware allowed us to update the badge during the event and turn it into a radio communications device. Attendees were able to communicate with us through this firmware update, and ultimately, complete a number of puzzles that were incorporated into the main event's "capture the flag" competition.

Students from my consulting group conceived of, designed, and then programmed games onto the badge. The badge featured a few innovations that the Badgeline community had not yet used, including over-the-air updates, onboard IRC communication, and command-and-control functions. In addition to managing the design team, I played a critical role in the manufacturing of the badge and managed the production run.

Year

2019

INNOVATION IN MESSAGING

As part of the 2019 badge project, my collaborator Rudy Ristich and I developed an innovative messaging system that leveraged the Internet Relay Chat (IRC) protocol. Badges were linked together through IRC, which enabled us to communicate directly with them, push over-the-air (OTA) updates, and issue command-and-control messages that made the badges play tunes like the popular Rick Roll simultaneously.

GAMES

HACKER CON 2018 & 17

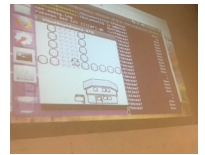
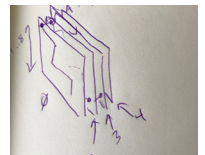
This badge was done in collaboration with a student consulting group that I direct, as well as my friend Rudy Ristich. The driving design concept behind this badge was a play on another collaborative game (then popular) called Twitch Plays Pokemon which had thousands of players vying for control of the popular Ash Ketchum character. I co-developed the firmware and game experience that allowed conference attendees to collaboratively play Pokemon through the badge they received at the event. In addition to this functionality, players mined a fictional version of Bitcoin that we invented for the event, and spent their digital currency to purchase various upgrades and unlock puzzles.

Students from my consulting group conceived of, designed, and then programmed games onto the badge. In addition to managing the design team, I played a critical role in the manufacturing of the badge and managed the production run.



Year

2017 - 2018



GAMES

AN INDIE GAME ON STEAM

Delve Deeper is the first installation of a video game that's sold on Steam, Humble, and various other outlets. Lunar Giant was a game company that I was a part of and, ultimately, ended up running for a little over five years. When I joined the team, Delve Deeper was nearly complete, but still needed some polish and partnership development with various publishers. I engaged with teams at Valve, Humble, and other online publishers to negotiate the release of the game.

On later installations of the game — through DLC — I further worked as a level designer, assisted in asset development, and continued to manage the business operations of the game's sales. Delve Deeper went on to sell over 100s of thousands of copies worldwide.

Sidenote.

This was my first major foray into game development, management of a company, and working directly with publishers. As part of my role on this project, I co-founded and led the Chicago chapter of the International Game Developer's Association and leveraged this work to build a game community in Chicago.

DELVE DEEPER

Delve Deeper is a turn-based Adventure/Strategy game for Windows that combines HD pixel art, tile placement, and RPG elements in a bright and humorous atmosphere. Up to four players take command of Dwarf mining teams in this fast and furious dungeon adventure meets devious puzzler, building the map as you play for an ever-changing, endlessly replayable strategy experience for you and your three best friends, or three devious AI teams.

Year

2010 - 2012





MEGA RAN

This video game was a collaboration with the rapper Raheem Jarbo (AKA Mega Ran) for an album release/ Kickstarter project. Developed in Impact.js at my game company, Lunar Giant, we conceived the game, designed, and programmed it all in three months.

My work on the game included programming, game engine modification, and game and level design. As with all games at Lunar Giant, I worked cross-collaboratively with a small group of talented programmers, artists, and designers to develop and release the game. The game is currently maintained by a third party.

Client Name

Mega Ran

Year

2014



THANKS FOR YOUR INTEREST

My work in developing products, creating non-profits and businesses, and education spans over 15 years. The thread that runs through all of my work is enabling people to create for themselves -- something not seen since the Arts and Crafts Movement of the early 20th Century. I believe that now, more than ever, we have the ability to re-shape the world around us through a combination of education, design, and big ideas.



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