

JUNE 2020 | GRADUATION

Northwestern | DESIGN INNOVATION

SEGAL DESIGN INSTITUTE at the
McCORMICK SCHOOL OF ENGINEERING

*Congratulations MaDE, MIES, & Segal Design Certificate
Graduates*



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*We believe in
you!*

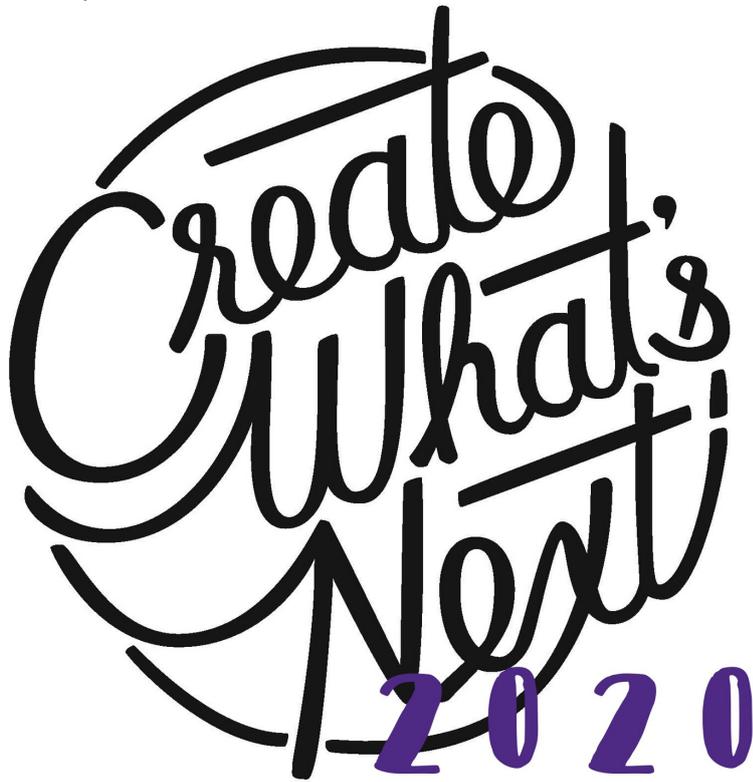
*Bruce Ankenman
Co-Director,
Segal Design Institute*

NOTE FROM SEGAL CO-DIRECTOR

Segal graduates of 2020, The faculty and staff of Segal are so sorry that one of the pivotal moments of your life has been disrupted by fear and suffering due to the coronavirus and overshadowed by acts of hate and racial injustice.

However, we are proud to send you into this troubled world to change it for the better, because we know you are ready. Over the last four years we have seen how you have learned to value your own creativity and to be bold in proposing new and innovative solutions to difficult and even to seemingly impossible problems. We have also seen your perseverance and resilience when faced with destructive setbacks and your ability to rise to the occasion when you need to.

You are just the right people to make a lasting positive impact in our world. We want you to know that we are proud of you and that we will be here to support you in any way we can. One of the first things that you learned in every Segal class was that understanding people is at the heart of all good design. We encourage you to use the tools that you learned here to design new, human-centered ways to heal our broken world. Lastly, we also want to recognize that you too are a human with needs, so we encourage you to take the time now and throughout your life to heal yourself while you prepare to help others and our society. We believe in you!



NOTE FROM MANUFACTURING AND DESIGN ENGINEERING PROGRAM DIRECTOR

The past four years have reflected a marked period of growth within the MaDE program and the Segal Design Institute as a whole. We have seen the introduction of the San Francisco Bay Immersion Program, which has proven to be an effective environment for introducing students to the design process, to the benefits of design thinking, to the opportunities within Segal. We have seen the productivity and quality of deliverables in the Ford Prototyping Shop reach new heights with the support of talented shop professionals and student trainers. We have seen an increase in “capstone” opportunities with the introduction of two-quarter course sequences in industrial design and service design, as well as a three-quarter capstone course sequence for MaDE students. We have seen the interest in design at NU become so significant that the entire Ford building is now dedicated to these disciplinary efforts, in turn, opening up key collaborative and prototyping space for design teams (e.g., the old EDI studio in the sub-basement of Ford).

This past quarter we also saw some remarkable life changing events occur. Students and faculty were forced into a remote learning environment with little time to prepare. We saw faculty show remarkable creativity in delivering project-based classes online and students demonstrate their true desire to learn under these challenging conditions. We saw a nation stand up and say “Enough!” in the wake of Mr. George Floyd’s death, and an ongoing series of protests serve as a reminder of what is truly important in life. We saw the compassion with which we take care of each other within Segal and within the MaDE program.

To the class of 2020, I say “Thank you.” Thank you for the efforts you have made, the boundaries you have pushed, the teammates you have supported, the paths you have laid for others to learn from, and the trust you have placed in me and the other Segal faculty.

I am often asked, What can one do with a MaDE degree? The answer to which is, What do you want to do? I am a firm believer that each of you now possesses the skills and knowledge to contribute to any field that you are passionate about. Believe in your preparation and I am confident that you will find success.

Congratulations to the MaDE Class of 2020.

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*Believe in
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*David Gatchell
Manufacturing and
Design Engineering
Program Director,
Segal Design Institute*



NOTE FROM SEGAL DESIGN CERTIFICATE PROGRAM DIRECTORS

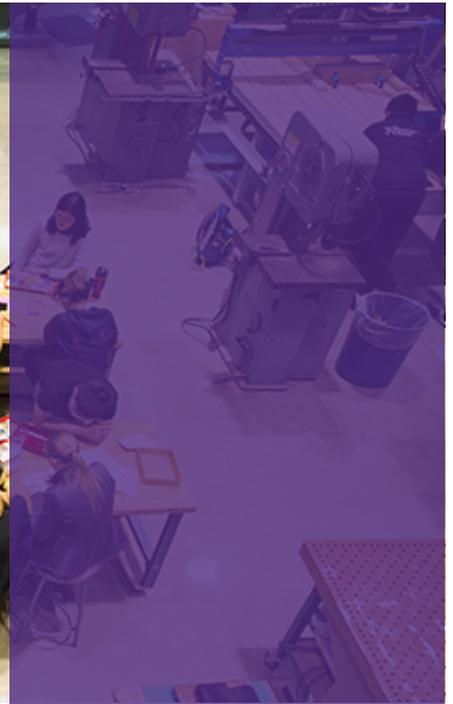
The Segal Design Certificate is a program that can be paired with any undergraduate major at Northwestern. Originally, the certificate was only for engineers, intended to give students with a passion for design somewhere to go after taking the introductory first year design course, but before attacking the department-specific capstone design courses. Segal's interdisciplinary approach to teaching design proved so popular that the program was extended to embrace other forms of design, notably service design and industrial design, and offered to a wider range of students.

The program's interdisciplinary focus is a reflection of the protean nature of design, a response to the widespread demand for design from students across the university, and a recognition of the many shades of design thinking that permeate Northwestern's departments and disciplines. Our graduates this year study mechanical engineering, journalism, cognitive science, environmental engineering, psychology, computer science, economics, theatre, biomedical engineering, and piano performance, among other things. Three are visiting students from Singapore's Nanyang Technological University.

Including those who graduated in December and March of the 2019-2020 academic year, sixty-nine students will receive the certificate this year. Thirty-three are taking their degree from McCormick. Thirty-six come from other schools.

With such a broad range of students and interests, it is clear that no two certificates—and no two certificate students—are alike. What do they have in common? And what holds the program together?

Surprisingly, it is not design, or not just one type of design. Design is not something that we can claim as our exclusive property at Northwestern. Our students come here to do design, most definitely. But they also come here to express and share the varieties of design that they already do. And it's not just the making and building that go on in our courses, although one could make a strong case for that. Of all the shops on campus, Segal's prototyping lab has as its first mission the support of the undergraduate design curriculum. But our shop, despite its importance to the certificate program, was closed this spring. Yet our students have completed their projects and their degrees. And, as always, they have startled and delighted us with their work.



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What do they have in common? And what holds the program together?

*Stacy Benjamin,
Segal Design Certificate
Program Director,
Segal Design Institute*

NOTE FROM SEGAL DESIGN CERTIFICATE PROGRAM DIRECTORS CONTINUED

So if it is not design, or making, or being physically present in the Ford building that expresses what our students truly have in common, what is it?

Before we give up on the question, it is helpful to look at what happened in two different courses this quarter, both part of the certificate program: the portfolio course, DSGN 370, and the second half of our interdisciplinary project sequence, DSGN 384-2. And what happened is that students' followed through not just on their commitments to their projects, or their clients, but also to their classmates.

The portfolio course always depends on peer review, and it is one of the features of the course most often mentioned by students over the years. And in lockdown, when everyone was separated, peer review and peer feedback were even more important. Likewise while the interdisciplinary design teams dealt with working off campus, and performed minor miracles doing so, it became more and more apparent that what was holding

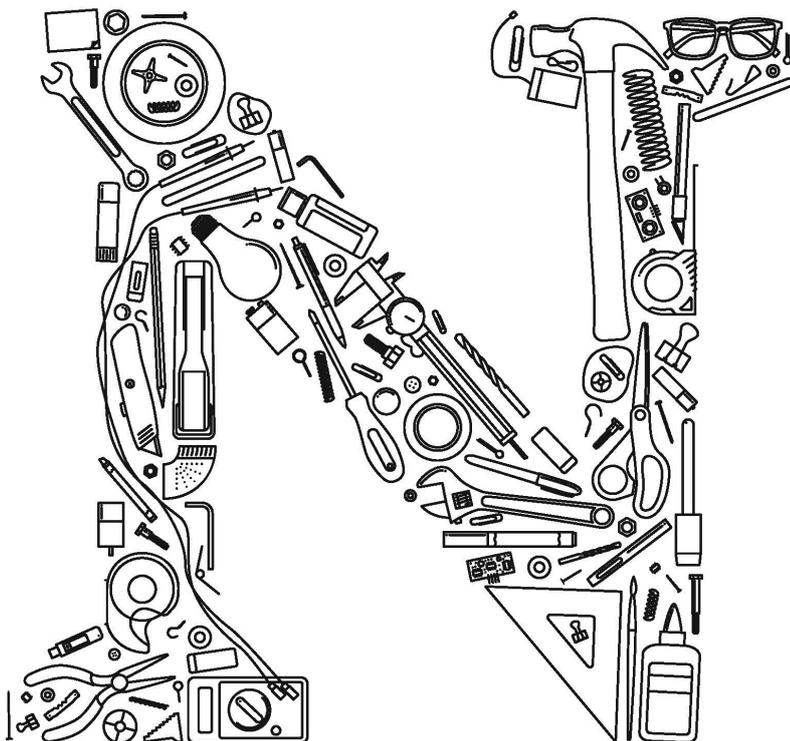
the teams to their shared purpose was not the desire for a good grade or the fear of a bad one, but the desire that everyone's work not go to waste, and the shared agreement to honor the commitments to each other that they had made. As instructors, we did our best to encourage the teams. But they did more to encourage each other: another element always present in team-based projects, but exposed with greater clarity during the pandemic.

So perhaps the common element in everyone's design certificate is not only that we share in Northwestern's well-established culture of design, but also that our students find ways, over and over, to form a culture of encouragement: of leading by example, and of reaching out to give, and take, and share support. As faculty, we cannot take credit for this culture. But we can celebrate it. And it is our great pride and pleasure to do so, as we congratulate the certificate program graduates for 2020.

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*John Anderson,
Segal Design Certificate
Program Director,
Segal Design Institute*



NATALIE HANSON

Segal Directors' Award - Manufacturing and Design Engineering



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Within McCormick, I have never seen students more passionate and driven than MaDE students. In addition to technical expertise, we have this intense drive to tackle complex projects, compete in design challenges outside of class, and to work on independent visions.

Some of my best friends are the most talented engineers that I know and I have been fortunate to spend many late-nights in Ford with them unraveling the root cause of challenges and pushing designs to be better. I hope to never cease doing this!

When she arrived at Northwestern, Natalie Hanson thought that she would major in biomedical engineering. After taking part in the San Francisco Bay Immersion Program, she changed her major to Manufacturing and Design Engineering. While working on a project sponsored by Intuit, Natalie “fell in love with design,” and went on to learn and apply human-centered design in a number of different projects. She has excelled in her work both at Northwestern and abroad, and developed a truly international perspective.

From working with autistic children in a Vietnamese schoolhouse, to protecting cattle in Thailand, to working with a world-famous furniture designer in Denmark, to studying water desalination in Israel, Natalie has applied her design skills all over the globe. At Northwestern, she has excelled in her Segal coursework, demonstrating both high individual achievement, and an ability to help her classmates and team members achieve as well. According to Professor Andrew Skwish, speaking of her contributions to the design portfolio course, “When she works with others, when she provides feedback and direction, their work improves significantly.” And Professor Dan Brown notes that Natalie’s work on the “Bionic Wrench” manufacturing challenge “Will serve as exemplars for future students taking the class.”

Outside of the classroom, Natalie has worked hard to advise and mentor younger, less experienced MaDE students. Natalie has also been an important member of NUSolar, Northwestern’s Solar Car Team. She reports that the most thrilling experience of her college career was racing the solar car on a Formula 1 racetrack in Austin, Texas.

Natalie has enrolled in the MS program in Mechanical Engineering at NU. A recipient of the Alumnae of Northwestern Graduate Fellowship, she plans to develop her mechatronics skills while furthering her interest in the role that sustainability should play in design.

GAVIN BREHM

Segal Directors' Award - Product Design



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The Segal Design Institute teaches that a design must follow the needs of the user. In my experience, education is no different. The ability to learn about my own needs, personally shape my own path alongside peers from across the university, and build lasting relationships with mentors has led directly to many of the most fulfilling academic experiences I have had in college. For me, the community of the Segal Institute has embodied every reason that I came to Northwestern.

Gavin Brehm leaves Northwestern with degrees from three distinct programs: trumpet performance, cognitive science, and human-centered design. Drawn here by the opportunity to combine a top-ranked music program with his interests in music, physics, and mathematics, Gavin's journey has redrawn the boundaries of interdisciplinary design education at Northwestern. In recognition of his unique achievements, Segal is pleased to award him the first Director's Award in Product Design.

Gavin has been involved in summer design work with the Shirley Ryan Ability Lab, graduate level research with Northwestern's Multisensory Lab, materials research with Impossible Objects, and numerous musical productions including the Waa-Mu Show. He has been extremely active in mentoring and coaching other students, many of whom have shared how much they have learned from him, and appreciated his guidance. In last year's "White Space" Challenge, Gavin's team finished second behind a team of graduate students from Segal's EDI program, and he was singled out by his teammates for his contributions.

Within Segal, Gavin has been an advocate for new ways to pursue design as an undergraduate, working directly with our faculty and administrators and bringing a student's perspective to ongoing efforts to expand and enhance the service design capstone sequence and the Da Vinci class, among others. He is passionate about addressing problems "at the intersection," and hopeful that his efforts can help other students to pursue their interests even when they fall in between and outside of traditional disciplines.

This coming year, Gavin will be traveling to Hamamatsu, Japan as a recipient of a Henry Luce Scholars Fellowship, an honor only given to 16-18 students a year nationally. While there he intends to combine his interests in design, music, and research by working in the R&D division of Roland synthesizers. On completion of the fellowship he has a standing offer with Steinway Conn-Selmer to join their R&D efforts.

JESSE BROWN

Segal Directors' Award - Design Certificate



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My experience at Segal over the past 4 years has been incredible. From the first day I stepped into the building, to now even with remote classes, I have been amazed at the people and resources available that have allowed me to continuously grow throughout my journey. The things I have learned at Segal will influence my professional life in the mechanical engineering field for years to come. I am glad that I have such a great living foundation of instructors that are open to help me develop or give advice even once I am out in industry. I will always cherish my time at Segal, and I thank all who I have had the pleasure to share time with, peers and instructors alike.

Jesse Brown is a designer, engineer, musician, and varsity running back. While at Northwestern, he has consistently demonstrated persistence, creativity, leadership, and a gift for form. A mechanical engineering major, Jesse has been a key member of Segal while pursuing the design certificate. As a rapid prototyping lab manager, he has used his expertise in solid modeling and mechanical design to benefit other students, and helped them achieve their visions.

As a member of Northwestern's football team, Jesse has been singled out for his contributions. He has been awarded Academic All-Big Ten honors four times, and was elected by his teammates to the Leadership Council. Highlights from the 2019 season include receiving a 23 yard pass against Stanford, and running 79 yards on 9 attempts against UNLV.

Jesse's design work, whether on independent projects or as part of a team, demonstrates creativity, but also determination and a willingness to learn from experimentation. Whether sketching and fabricating a headset wall mount, collaborating with programmers to design a robot, or building his own bass guitar, he incorporates both art and science into his design process. As part of a team working for Shedd Aquarium to design a more reliable method for measuring lobsters at a distance, he built and tested multiple generations of a 3D printed coupling that had initially failed an impact test, enabling the team to solve a problem that could have ended the project. With each iteration, the parts became stronger and more efficient, but also more elegant.

His Segal instructors have unanimously praised Jesse's work, offering many examples of the depth of engineering knowledge reflected in his answers, and the positive effects to his project teams of his confident, consistent, always-prepared stance when facing a challenge.

GEORGE CHENG

Segal Directors' Award - Service in Design



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Everything. I push buttons. I turn dials. I read numbers. Sometimes I make up little stories in my head about what the numbers mean..... But also I know what they really mean, I enjoyed teaching others what they meant and hopefully encouraging them to see design from manufacturing and manufacturing from design. Honestly, I couldn't have done it without Scott, Bob, Heidi, Joe, Mike Beltran and everyone else who helped me along the way. Thank you all so much.

George Cheng is a leader who encourages others to learn through hands-on exploration. George has been a Segal Senior Shop Trainer, the Chief Engineer for the Northwestern BAJA SAE team, and a staff member for the Rapid Prototyping (RP) lab. In each role, he has demonstrated not only exceptional ability and achievement, but also a commitment to the learning and advancement of other students.

From the start of his time at Northwestern, George was eager to work in the shop, and he has made it his home. Already an experienced builder and welder, he has been a constant presence in the shop as he worked on numerous course-related assignments and personal projects. After all, it's a great place to rebuild a truck engine! But George has also been one of the students who make the shop a home for others. He watched out for anyone who looked like they were struggling, or unsure of what they were doing. He offered help without waiting to be asked.

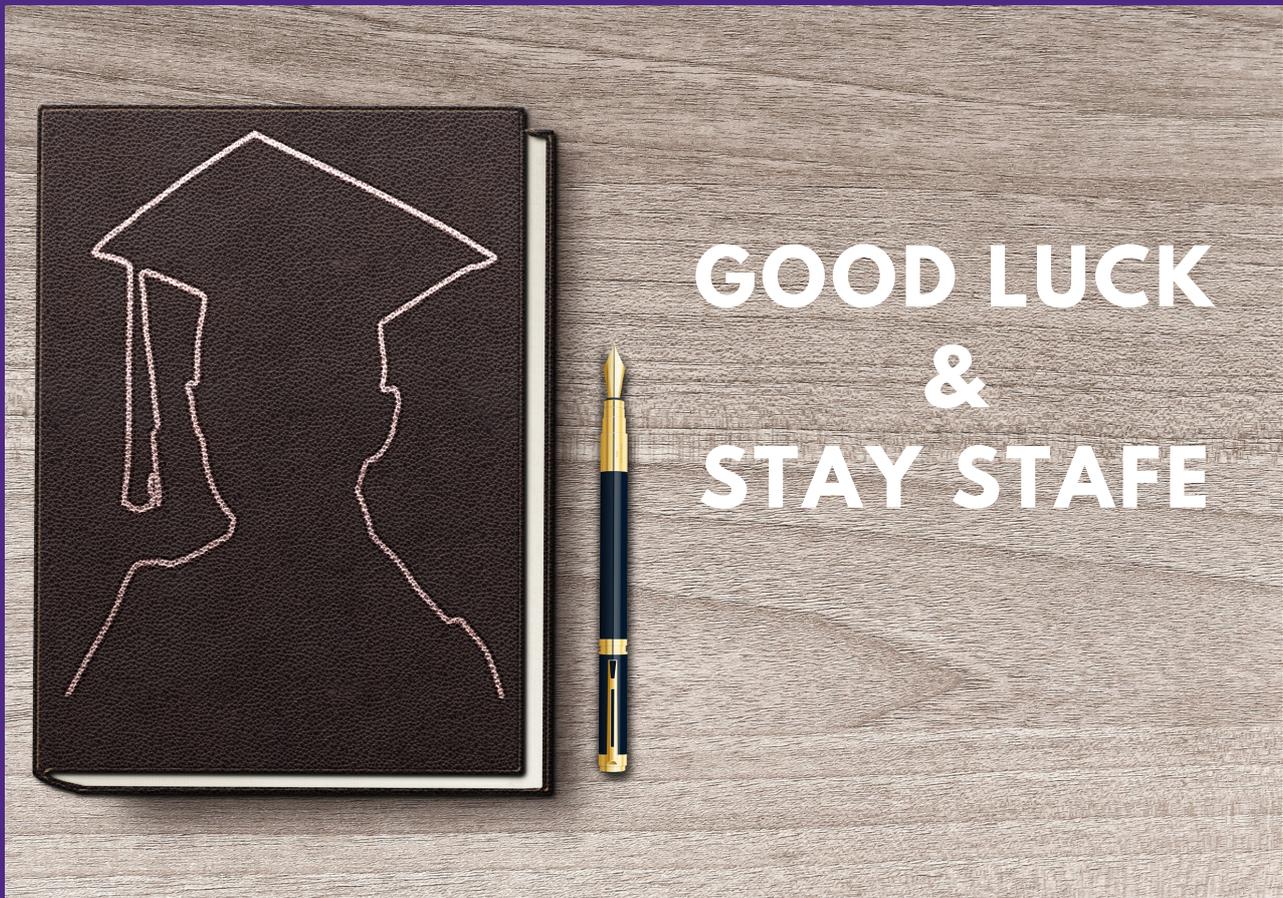
George has demonstrated the same helpful, can-do attitude with the BAJA team. Not content to optimize the suspension geometry, he also made sure others knew what they were doing, and brought freshmen team members to the shop to train them. He showed his dedication to the BAJA team this year by helping them complete the car, despite COVID-19. Working from an off-campus location, he and another team machined the last few parts to put all the pieces together.

George has also been a huge help as an Undergraduate Assistant, keeping all 50+ students in ME 340-2 safe while using the CNC equipment. He also worked hard to provide everyone with mold blanks, and created a new molding setup that will keep the class running smoothly for years to come.

George has always done his best to help other students achieve their best. His passion, engagement, and commitment to supporting other students to succeed in their designs inspires all of us at Segal.

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CONGRATULATIONS CLASS OF 2020



Northwestern

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