JUNE 2021 | GRADUATION

# Northwestern | DESIGN INNOVATION

SEGAL DESIGN INSTITUTE at the
McCORMICK SCHOOL OF ENGINEERING

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


> *Untangle the opportunity from the uncertainty.*
>
> *Kim Hoffmann*
> *Director of Strategic Initiatives,*
> *Segal Design Institute*

## NOTE FROM SEGAL CO-DIRECTOR

Segal graduates of 2021, Congratulations on your amazing achievements over the past four years! You should be very proud of all you've accomplished, especially amidst the recent turmoil in our country and in our world.

The past year has presented some of greatest challenges humanity has known in modern times. As a society, we've grown accustomed to uncertainty, to isolation, and to fear. But we've made it through the roughest parts, together! And now we can turn to the future, to the opportunities that lie ahead. How will each of you enrich the world, and the lives of others?

As human-centered designers, you have the tools and the mindsets you need to discover opportunities within the uncertainty of our current world. You are poised to define what the future holds for all of us. The future is uncertain, for sure. The world needs your skills, your passion, your empathy, your sense of justice, your willingness to try things, your humility and your confidence.

Don't simply forget what has happened over the past year. Don't wistfully wish to go back to "normal times." Use the pain of your past experiences to fuel your passion for a better tomorrow. Untangle the opportunity from the uncertainty. Create the new "normal." Design what's next for our country and our world!


# NOTE FROM MANUFACTURING AND DESIGN ENGINEERING PROGRAM DIRECTOR

MaDE graduates of 2021, over the past 15 months we have often been asked, “How are you doing?”, to which we respond with the typical, “Fine.” In reality, however, we have been anything but fine. According to a recent article in the New York Times, many of us have been languishing, a mental state equivalent to feeling “bleh.” Whether it has been a coding project in IEMS 313, a problem set in IEMS 382, determination of tolerances in DSGN 386, or a WSR in the MaDE capstone sequence, inspiration to tackle academic assignments has been difficult to find this year. It is a new experience for all of you, as you are accustomed to flourishing in your studies, a mental state that originally helped you to gain admittance to Northwestern. Yet, even with this impediment in place, each of you has found a way to complete that project, to study for that test. This year has been a “gut-check,” a test of your individual mettle – a test that all of you have passed.

Throughout this year we have been consistently learning what it means to live, function, potentially thrive, under the constraints of a pandemic. It is tough going when we are always learning - as MaDE students you have shown a love for applying what you know and there has been limited opportunity to do so over the past year. In spite of these ongoing challenges, there have been bright spots including the enthusiasm and energy that you have brought to your capstone projects and the service that you have provided to the institute as a whole. Each of you has found your “voice” within the MaDE curriculum, an achievement that will help you find success going forward.

Congratulations!

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*This year has been a “gut-check,” a test of your individual mettle – a test that all of you have passed.*

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

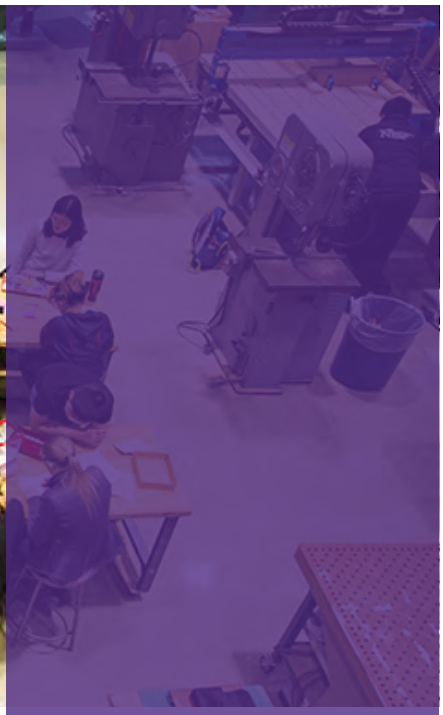
# NOTE FROM SEGAL DESIGN CERTIFICATE PROGRAM DIRECTORS

The Segal Design Certificate program enables students in any undergraduate major at Northwestern to develop design knowledge and skills that will give them a competitive edge in their careers. Certificate students apply design thinking in team-based, cross-disciplinary settings, and identify and solve real-world problems for actual clients.

The Design Certificate was originally offered to engineering students before the program quickly expanded to embrace a wider range of disciplines and forms of design. Our graduates in the 2020-2021 academic year come from degree programs including art theory and practice, Asian American studies, chemical engineering, communication studies, computer science, economics, earth and planetary sciences, journalism, learning and organizational change, industrial engineering, integrated science, manufacturing and design engineering, materials science and engineering, mechanical engineering, music, political science, psychology, Russian and East European studies, statistics, and theatre. This mix of disciplines enriches the program as students collaborate in class and on design projects. Everyone approaches design from a different perspective, and contributes in different ways.

The interdisciplinary nature of the program mirrors the interdisciplinary nature of design. Throughout the design process, we strive to connect with a diverse group of users, stakeholders, and experts. We do so to hear and understand their perspectives, and to learn about what we don't know. Making these connections helps us to better define the challenges and opportunities of a project, and to redefine what a successful design will be.

In this past year, connecting with teammates, users, and stakeholders has been much more difficult. The pandemic posed logistical challenges to distributed teams that at times made it almost impossible to achieve the level of interaction that we believe to be at the heart of design. But these logistical issues turned out to be relatively easy compared to the deeper challenges imposed by isolation, anxiety, and uncertainty. We worried about our own health and well being, and even more about the safety and security of those we love. And the stark reminders of the persistent systemic inequalities that endanger the lives and freedoms of so many have only added to those worries.

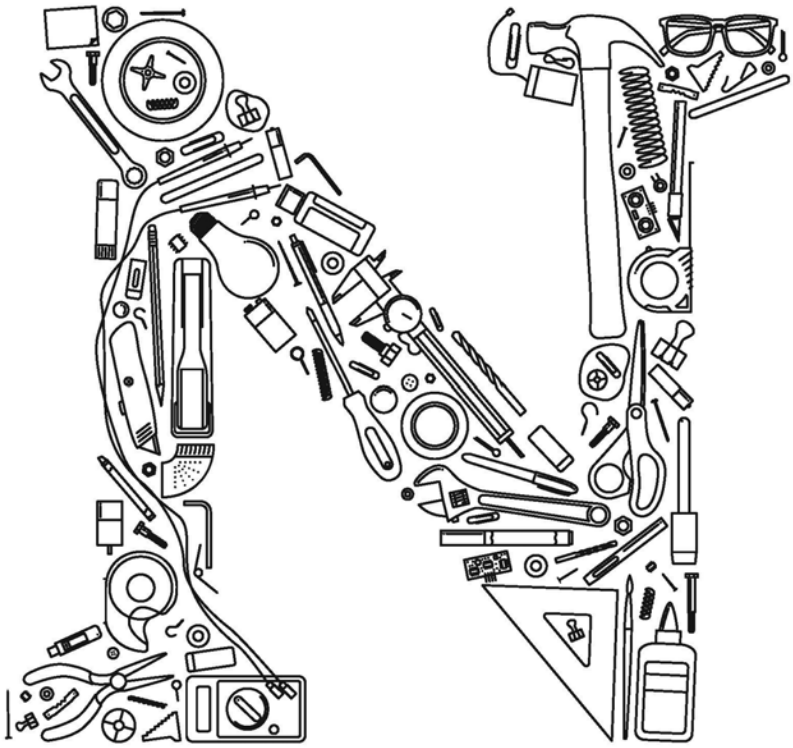


> *Everyone approaches design from a different perspective, and contributes in different ways.*

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

# NOTE FROM SEGAL DESIGN CERTIFICATE PROGRAM DIRECTORS CONTINUED

While we are far from solving these issues, we may still hope that we have gained new perspectives and new skills that we can bring to bear on the many problems we face. We have grown in ways that we did not imagine or plan. Perhaps we have even increased our understanding and practice of empathy. While our focus as students of design has always been to cultivate empathy for users, we have been reminded of the need to foster empathy for teammates and classmates. We have embraced the notion of giving others "space and grace," and acknowledged that we just don't know what someone else might be facing. We have become more resourceful and agile in adapting how we communicate using a wider range of digital tools, using our phones as document cameras to share sketches in real-time, or demonstrating rough mockups made at home, substituting online whiteboards for physical whiteboards, sharing screens to mimic in-person walk-thrus of design wireframes, and so much more. Behind all of this is really the internalization of design - we identified what we were trying to accomplish, considered a range of options, and experimented to find what might work. Perhaps more than in the past, our graduates are taking away design as a mindset rather than just a process. It is with great appreciation for the students' perseverance and success that we congratulate the certificate program graduates for 2021.



> *While our focus as students of design has always been to cultivate empathy for users, we have been reminded of the need to foster empathy for teammates and classmates.*

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

JUNE 2021 | GRADUATION

# ZACHARY SHONFELD

*Segal Directors' Award - Manufacturing and Design Engineering*

*My experience in MaDE has helped me put empathy at the center of everything I do. Whether it's the human-centered design process or working through a problem with a friend, being a student in MaDE has helped me strengthen my ability to put myself in another person's shoes, and help them solve the problems they experience everyday. I am so honored and humbled to receive this award, and I will be sure to take this empathy-focused mindset (and many more values) with me as I begin my post-Northwestern journey.*

As a prospective student, Zach Shonfeld was intrigued by NU's whole-brain approach to engineering. While certainly interested in STEM-related fields, he was excited by the prospect of working with engineering students that had a diversity of interests outside of engineering. While he initially declared a degree in mechanical engineering - self admittedly because of its universal demand in industry - Zach was drawn to the ME/MaDE dual degree option, an option that aligned with his interests in engineering, design, and solving human-centered problems.

As a junior, Zach participated in the initial offering of the three-quarter long MaDE capstone sequence, where his team focused on the process of cleaning up and disposing of broken glass in the home. Using a 25 ft2 test bed (one with interchangeable floors and four-foot-high plywood walls), Zach and his team members took turns dropping wine glasses to better understand how they break on different surfaces. This investigation evolved into a partial factorial design of experiments through which the strengths and weaknesses of 14 benchmarked solutions were identified. The results of this research informed the team's conceptual development of Cleanr, a hybrid dustpan/vacuum cleaner with a built-in COB LED panel for increased visibility of the smallest fragments of broken glass. The team filed a provisional patent for its design in the spring of 2020, and the final prototype was entered into the 2020 James Dyson Award Competition. The team's design and development process now serves as an illuminating case study for prospective MaDE students and future capstone teams.

In the mechanical engineering capstone, which Zach took as a senior, his team was tasked with improving the resin impregnation system of motor armatures for GE Aviation. Zach was able to build upon his MaDE capstone experience, establishing expectations for himself and his teammates that surpassed those of the course instructors - throughout the two quarters, the team's execution of the product design and development process was impeccable. Each week the team would submit weekly updates, usually 20+ pages in length, that were simple to read and flawlessly edited, even though the problem space was complex. Specifically, Zach was able to infuse learnings from his industrial design classes in Segal to communicate complex systems and processes, including the creation of hand-sketched journey maps and exploded views that established new standards for communication for the ME capstone sequence.

Zach was drawn to NU because of its whole-brain approach to engineering. He graduates epitomizing what Dean Ottino had in mind when he crafted this idea. Zach is an excellent designer and engineer; he possesses an acute ability to empathize with others (as evidenced through his work with Camp Kesem), and he is an exemplar of what one can learn through the MaDE program.

JUNE 2021 | GRADUATION

# LAUREN SIMITZ

*Segal Directors' Award - Design Certificate*

*The Segal Design Certificate gave me the unique experience to work with people across Northwestern - in and outside McCormick - that I wouldn't have otherwise. As a chemical engineer and earth & planetary science double major, I am a better engineer and individual for the way others challenged me to think beyond the curriculum, centering how my work interacted with people and the environment.*

Lauren Simitz graduates with a double major in Chemical Engineering and Earth and Planetary Science, as well as the Segal Design Certificate. While at Northwestern, she has demonstrated her talent for research, her passion for collaboration, and her mastery of design thinking on a range of projects and teams. An abbreviated list of examples includes extracurricular design projects with Design for America and Engineers for a Sustainable World, internships with Chevron and SpaceX, and her work with Northwestern's Colloids and Soft Matter Laboratory.

In her Segal projects, two themes emerge. The first is the excellence of her individual work: her depth and clarity of thought; her patient, thorough, detail-minded preparation; and the quick-thinking enthusiasm with which she engages in any discussion of her own or others' work. That willingness to give focused, generous, constructive attention to others is the second theme. Lauren helps others draw the best out of themselves. Whether offering tough but actionable criticism to a classmate working on a portfolio, or conducting research into composting methods during a pandemic, Lauren both sets an example, and inspires others to engage and excel.

As part of a team designing a composting system for Wagner Farms, Lauren fulfilled the role she embraced from the start: to become the team's expert in the chemical and biological processes that produce compost, and that would power the team's design. But she did more than this. From the start, she animated her team's brainstorming sessions, site visits, and design reviews. This was a strong team, composed of high-performing students: fast runners. But with Lauren on their squad, they ran faster. They achieved more. The team found ways to overcome every obstacle imposed by the pandemic, and delivered a professional-grade presentation to their client. It was a joint effort. They did it together. But Lauren's cheerful tenacity, combined with her never-failing appreciation and respect for her teammates, enabled the whole team to design better, design faster, and work together more closely.

Lauren will return to SpaceX this summer, before starting a PhD in Aeronautics and Astronautics at Stanford in the fall.

JUNE 2021 | GRADUATION

# LOGAN GOERING

*Segal Directors' Award - Service in Design*

> *Segal's iterative design process taught me that continuous improvement is a way of life. Improve yourself, improve your products, improve the world.*

Logan Goering has been a common sight in the Segal prototyping lab since he arrived at Northwestern. A member of the Northwestern University Space Technology and Rocketry Society (NUSTARS), he graduates with a degree in Mechanical Engineering, a concentration in aeronautics, and the Segal Design Certificate.

Logan has a level of willingness to try again that can only be attained by watching a prized artifact slam into the ground at high speed—and then rebuilding it. In his portfolio, he details with matter-of-fact precision the extent of the damage done to his team's launch vehicle by a catastrophic parachute failure, and the steps taken to apply the lessons learned. He notes: "The fruits of this effort were shown two weeks later when there was a 100% successful Vehicle Demonstration Flight."

This willingness to learn from failure drives Logan to strive for simplicity and elegance in his designs. The faculty have frequently praised his work—from rocket parts, to impact simulations, to garage-built mockups created during the pandemic for teammates on the other side of the world. Even more praiseworthy, however, are his contributions to the culture of the prototyping lab. Logan is a teacher and mentor, one of those invaluable, irreplaceable (yet, somehow, every year renewed) senior students who coach the new students, and show them how things work. Numerous people came forward to share examples of Logan's generosity with his time, his contagious determination, his strong collaborative work ethic, his inspiring creativity, and his warm friendliness. Logan is one of the people who make the shop a place to learn, to try, to fail— to seek help, and find it. And he is good at helping other students come up with their own "late-stage multi-pronged failure mode mitigation plan" (to copy another phrase from Logan's portfolio).

During graduation week, students reflect on what they take away from Northwestern. With this award, we would like to recognize that Segal gains much more from our students than we could possibly give to them. This perpetually-renewed culture of creativity, solidarity, friendship, and aspiration simply would not exist without the students who, like Logan, find the shop, make it their home, and then help others find a home here as well.

JUNE 2021 | GRADUATION

# RYAN H. Y. TEO

*Segal Directors' Award - Product Design*

> *At the Segal Design Institute, I learned to apply a user-centered approach to everything, including my own undergraduate education. With a lot of support from faculty members, I was given the unique opportunity to design my own Northwestern curriculum to precisely match my curiosity for ethnographic research, design strategy, and product engineering.*
>
> *To everyone at Segal—thank you. From the students to the faculty to the administration, the Northwestern design community embodies a spirit of innovation that has allowed me to become the person I am today.*

Ryan originally considered applying to NU to study mathematics, but during his two years in the Singapore National Service, his focus turned to design. After arriving on campus and speaking with students like former award winner Gavin Brehm, and various Segal faculty including Professors Gatchell, Hartman, and Skwish, Ryan came to better understand the concept of human-centered design and where it aligned with his interests. In his own words, "… it was the community—specifically, the design community—that kept me interested and allowed me to flourish."

If one takes the time to study Ryan's portfolio, they are immediately struck by the amount of material that he has generated over his time at NU. Ryan is always thinking about design and strategy as well as ways of bringing others into the "conversation." This has included the founding of Studio, a student-run design studio focused on helping new students develop the design skills that they need to succeed on complex design challenges. He has successfully led numerous student-based design teams in local, regional, and international competitions, typically finishing in the top three, if not actually winning the overall competitions. In 2020, he participated in an international competition sponsored by Shanghai Jiao Tong University which focused on the problem of safe public transportation during a pandemic. Working with three other students from across the globe, Ryan's team won the overall competition by designing "the bus of the future," a design that has received international acclaim and has been featured in media outlets such as CBS News, NPR, and the Shanghai Daily. In addition, he has worked for numerous start-ups, both within the university and in the private sector, with comparable success.

Given the number and quality of Ryan's accomplishments, it would be easy to overlook the quality of his character. Ryan is a strong listener and communicator. He has a remarkably positive attitude and is always on the lookout for feedback and to surround himself with individuals that he can learn from. Ryan is no longer seen by his peers and employers as simply a budding product designer, but as a leader in design. Like a true designer conducting ethnographic field research, Ryan plans to immerse himself in an environment where he can learn from some of the world's best leaders. This has led to his applying to the 2+2 program at Harvard Business School, a program that allows applicants to postpone matriculation for as many as four years while they pursue other professional interests. Upon graduating, Ryan will continue his work as creative director and design engineer at Captain, an Evanston-based company focused on enhancing relationships between restaurants and their customers. Within the next few years, he plans to attend the aforementioned program at Harvard. In the long-term, he would like to apply his learnings to opportunities in SE Asia, specifically the design thinking movement within his native country of Singapore.

JUNE 2021 | GRADUATION

# CONGRATULATIONS CLASS OF 2021

## BEST OF LUCK!

### *Design Certificate*

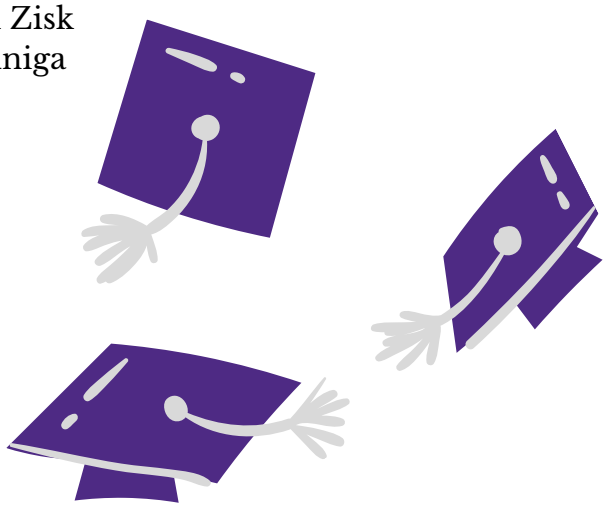
Khaled Abughoush
Maria Arias
Daniella Asapokhai
Jason Asenso
Michael Atkin
Lark Breen
Samantha Borja
Rochelle Compendio
Sophia Crum
Sophie Davis
Michael del Rosario
Will Deschler
Madison Dong
Logan Goering
Alyssa Haley
Mikayla Hamption
Anne Hardy
Nia Harris
Emma Healy
Carolyn Henry
Pravika Joshi
Dilara Kalkkavan
Akhil Kambhammettu
Jessica Kang
Jenny Lam
Liam Lecka
Alicia Lee
James Lynn
Skyler Maeso
Jeremiah McDonald
Isabella Min
Isabella Noe
Emily Norfolk
Vainius Normantas
Patrice Power
Caroline Pozo
Ava Robinson
Ann Shaw
Lauren Simitz
Ravi Tandon
Brittany Taylor
Dominique Tome
Sean Wang
Madeleine Ward
Ethan Wiederkehr
Titobioluwa Williams
Cate Wolfen
Bella Zhan
Alyssa Zhong
Rachael Zisk
Juan Zuniga

### *MIES*

Abby Pratt
Aaron Senfeld
Ryan H. Y. Teo
David Yoon

### *MaDE*

Aaron Ahles
Gabi Bitting
Holland Blumer
Evan Bowman
Jaeman (Alex) Choi
Tommy Cohen
Peter Dorward
Jeffrey Durmer
Brandon Enriquez
Jules Gilligan
Nick Halim
Logan Johnson
Dilara Kalkavan
Greta Koepke
Eliana McComas
Annick Nshuti
Brandon Radonski
Luciana Ruiz
Cole Seabrook
Aziz Sen
Rakesh Shah
Kareena Sharma
Zach Shonfled
Avi Shulman
Efe Yavuz
Max Zhang



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