

2018



## The Cornerstone Competition

MN Cup's annual startup contest creates a foundation for the state's entrepreneurial culture.



Grand Prize winner  
Aneela Idnani  
Kumar and MN  
Cup co-founder  
Scott Litman

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# Filling the Gaps

MN Cup evolves to meet the needs of the state's growing entrepreneurial community.

By Suzy Frisch



Dean of the Carlson School of Management Sri Zaheer and MN Cup co-founder Dan Mallin.



This year's MN Cup Final Awards Event included special guests Sen. Amy Klobuchar (middle) and MN DEED commissioner Shawntera Hardy (right).

For the past 14 years, MN Cup has built a strong foundation for the state's entrepreneurial community. This support system continues to underpin a fertile ecosystem of early-stage companies across a broad swath of industries and an enthusiastic community of people and organizations who mentor, advise, finance, and reinforce an increasingly diverse pool of entrepreneurs.

MN Cup has grown and changed immensely since veteran entrepreneurs Dan Mallin and Scott Litman partnered with the University of Minnesota, the State of Minnesota, and Wells Fargo to launch the first competition in 2005. With this year's debut of the Education and Training division, MN Cup now includes nine industry divisions.

When MN Cup creates a new division, it's often because there is a critical mass of similar companies competing within a division that isn't a great fit. A new division can make it easier for judges to compare apples to apples and create a tailored group of

mentors, judges, and sponsors with sector expertise, Litman says. This expertise helps participants hone their business plans and strategies, gain exposure to interested investors, and build professional connections.

Aiming for 40 applications to indicate a competitive pipeline for Education and Training, MN Cup was pleasantly surprised

when it received nearly twice that. "This statistic is a strong testament to the significant, broad-based innovation taking place in Minnesota attempting to address some of the most significant challenges facing education," says Jessica Berg, director of MN Cup.

In total, nearly 15,000 entrepreneurs have competed in MN Cup since 2005, earning \$2.9 million in cash prizes. Finalists have also raised more than \$300 million in capital from investors. The competition's coaching is so invaluable that many companies enter the competition repeatedly, which MN Cup welcomes for participants that don't make it to the finalist round.

Those repeat participants "are so much further ahead and often become finalists the second time around," Litman says. "We're helping people cross the chasm from idea stage to getting some real scale. That has been an underserved part of the entrepreneurial ecosystem here."

The depth of resources MN Cup provides creates a fruitful environment for early-stage companies, which is reflected in the Twin Cities' ranking as one of the Top 10 Startup Cities by both *Forbes* and *Business.org*, Berg says.

"It's been amazing to see how we've continued to grow and change to meet the needs of entrepreneurs," she adds. "Our focus on offering a broad range of services to companies across our state, regardless of their industry, maturity, or geography, is truly unique nationally. We plan to continue collaborating with other organizations seeking to support entrepreneurs in Minnesota and use our scale and breadth to fill gaps and do what others can't do."

## Special Award Prizes

- Carlson Family Foundation awarded \$25,000 each to **Recovree** for the top woman-led startup and **Mobility 4 All** for the top veteran-led startup.
- Meda and JP Morgan Chase awarded \$20,000 to **HabitAware** for the top minority-led startup.
- MN DEED awarded \$10,000 each to **Biliyo Health** for the most innovative minority-led startup, **Hitch Health** for the top veteran-led startup, and **Clearwater BioLogic** for the top startup from Greater Minnesota.
- Sunrise Banks awarded \$10,000 to **Bridge** for innovation that improves financial wellness.

## 2018 MN Cup by the Numbers:

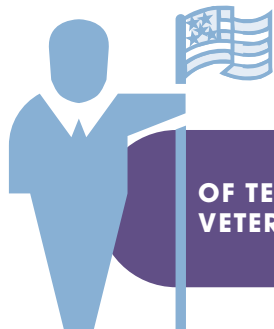


**NEW RECORD** **1,660+** PARTICIPATING ENTREPRENEURS

**\$500,000**  
AWARDED

**45%**  
OF TEAMS LED BY WOMEN ENTREPRENEURS

**27%**  
OF TEAMS LED BY MINORITY ENTREPRENEURS



**8%**  
OF TEAMS LED BY MILITARY VETERAN ENTREPRENEURS

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**2018 MENTORS OF THE YEAR**  
**Liz Barrere**  
**Nick Clementi**  
**Steven Snyder**

- Securian Financial Group awarded \$10,000 to **Legacy Armour** for the top insurance tech startup.

- AARP awarded \$5,000 to **Two Daughters** for innovation that improves the lives of seniors.

- Southern Minnesota Initiative Foundation awarded \$5,000 to **Davinci Industries** for the top startup from its 20-county region.



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## HIGH TECH



# HabitAware

Aneela Idnani Kumar excelled at hiding a disorder that caused her to pull out her eyebrows and eyelashes. She concealed her problem from everyone for 20 years, including her husband, Sameer Kumar. The day he discovered what she was doing, Idnani Kumar made a confession: she has trichotillomania. The condition, along with other body-focused repetitive behaviors like compulsive skin picking, affects 3 percent to 5 percent of people in the United States.

Kumar encouraged his wife to seek help for her trichotillomania, which is rooted in stress and anxiety. Though Idnani Kumar started seeing a psychologist, he noticed that she would still unconsciously reach for her face. It inspired an idea for them to pursue together: a wearable device that helps people stop subconscious undesirable behaviors.

In 2015, the couple teamed with software engineer Kirk Klobe, who is now the company's CTO, and John Pritchard, lead hardware engineer, to start HabitAware. They developed a prototype of Keen, a smart bracelet that alerts users when they engage in unwanted behavior. Idnani Kumar, a mobile app designer, and Kumar, a management consultant, took their prototype to a conference that year about body-focused repetitive behaviors and received positive feedback, motivating them to press on.

Early in 2016, HabitAware was accepted into HAX, a hardware accelerator in China. The couple quit their day jobs to focus on bringing Keen to market, spending nearly four months in China to get the product ready for manufacturing.



Aneela Idnani Kumar, Sameer Kumar, Karla Lemmon, Kirk Klobe, Ellen Crupi, and John Pritchard

"There is no medication for these disorders and not enough research about them," says Idnani Kumar, president of HabitAware. (Kumar is CEO.) "We invented Keen out of necessity, for people who do these behaviors to cope with irregular emotions. It makes people aware of what they are doing, and that's the most important step for changing behavior."

When users set up their Keen bracelet, an app calibrates the device to track the motion they want to stop. When they make that gesture with their hands—usually unconsciously—it gently vibrates. With this vibration, users become conscious of their actions, helping them shift their focus to more positive activities like going for a walk, yoga, or deep breathing.

People in 25 countries have started using the device since HabitAware began selling Keen in 2017. The company received a \$300,000 grant from the National Institutes of Health in August to improve Keen's algorithm.

What's most important to Idnani Kumar is that Keen helps people like her take control of their disorders, realize they are not alone, and shed the shame that comes from hiding body-focused repetitive behaviors. HabitAware will continue improving Keen while pursuing its use for other mental health conditions.

"We want this to become the standard of care for body-focused repetitive behaviors and the thing that helps you overcome this and learn better ways to take care of yourself," Idnani Kumar says. "Almost every day we get a note from someone who says, 'You've changed my life.' It makes me want to rush out the door and get to work every day."

#### \$100,000 Total Cash Prizes

- \$50,000 Grand Prize
- \$30,000 High Tech Division Winner
- \$20,000 Meda/JP Morgan Chase award for top minority entrepreneur

## LIFE SCIENCE/HEALTH IT



# Carrot Health

Asserting that the American health care system is more of a “sick care” system, Carrot Health is helping health care providers and insurers more effectively deliver preventive care. The company’s extensive data-powered software platform allows clients to focus on specific at-risk populations and intervene before they face health problems.

“It turns out that 80 to 90 percent of what makes us sick or healthy, expensive or cheap to insure, doesn’t have anything to do with health care brick and mortar. It has to do with consumer behaviors,” says Steve Sigmond, Carrot Health’s founder, CFO, and vice president of marketing. “We’re helping insurers and health providers better target interventions that improve wellness and divert people who otherwise might get sick and get them on a better track.”

Sigmond and three others with experience in health care and data analytics started Carrot Health in 2014. The four entrepreneurs bootstrapped Carrot Health with consulting projects and their own funding until the platform was ready in late 2016.

Carrot Health puts big data into action. Its MarketView software-as-a-service is built on consumer data collected from more than 100 sources covering more than 250 million U.S. adults. After analyzing the data, MarketView builds predictive models that guide payers and providers on how to improve outcomes or control costs. It also incorporates population health factors, such as access to clean water, healthy food, and opportunities for exercise, as well as consumer-driven information that other businesses use to market to individuals. Then the company provides detailed or big-picture information about consumers, markets, opportunities, and potential risks. With that knowledge, health care providers or payers design services or outreach efforts that address concerns like diabetes or high blood pressure.

Reams of raw data can be over-



Andre L'Heureux, Kurt Waltenbaugh, and Steve Sigmond

### \$50,000 Total Cash Prizes

- \$20,000 Grand Prize Runner-Up
- \$30,000 Life Science/Health IT Division Winner

whelming and not useful, Sigmond says, prompting the company to crunch and analyze data so clients don’t have to.

Medica, for example, uses MarketView to optimize marketing for its Medicare Advantage health plan. The platform gives the insurance company real-time intelligence about consumers in its market and a targeted list of potential customers based on its data and predictive modeling, Sigmond says.

Carrot Health’s team of 16 has been making inroads in its \$1.5 billion market, putting it on a “steep revenue growth trajectory,” including more than five times year-over-year growth from 2016 to 2017, Sigmond notes. In addition to products for health care providers and payers, the company also sees potential in life and disability insurance.

“We’ve done all the unglamorous work of data science. We bring all the actionable information and insight right to your fingertips in a consistent format,” Sigmond says. “When they see what they can do with the predictive modeling on top of the data, we pretty quickly turn the conversation into how we can help install this for them.”

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## EDUCATION AND TRAINING



# Cedar Labs

School districts have access to more technology than ever to help them track and assess students, improve instruction, and communicate with parents. But as schools add software and apps to their systems, the technology often doesn't speak the same language or work well together, creating headaches and potential data breaches.

Cedar Labs handles the system integration that vendors, districts, and government agencies don't often have the time, capacity, or inclination to do on their own. The company created a universal open-source platform that translates diverse data from software, systems, databases, and apps into the same language and ensures that they function together seamlessly.

"Right now in education, applications need to talk to each other," says co-founder and president Mike Reynolds. If a grade book or transportation system or library system comes online, it's difficult to get new applications to integrate with the student information system, he says. "Time is wasted by populating data by hand, and most severe, there are no privacy controls."

A finalist in last year's General division, MN Cup invited Cedar Labs to compete in its inaugural Education and Training division. Reynolds and his team thought they had a good story to tell about Cedar Labs' progress in the education technology market,

which is expected to hit \$250 billion in global spending in 2020,

according to a report from EdTechXGlobal.

Reynolds, who has a background in business systems integration, aimed to bring some of that sensibility and efficiency to the education world. The basis for Cedar Labs' platform comes from his volunteer work with the Schools Interoperability Framework (SIF), an international technology standard that helps schools easily share data. Cedar Labs'



Benjamin Silberglitt and Mike Reynolds

HostedZone platform features uniform standards for sharing education data between systems with tight controls over data privacy.

Since Cedar Labs secured its first client in 2013, the company has continued to expand its customer base and finesse its offerings. A key selling point, Reynolds says, is that Cedar Labs executes transitions from one application to another, making it easy for schools to switch to new vendors if needed.

"School districts plug the flow of data into our platform, and they can connect it to (any) software vendor," Reynolds says. "It's all in real time, and it's cloud-based. We're trying to make it simple and universal."

The company is working on deepening relationships with existing clients, adding new customers, and expanding its features, which include helping districts and government agencies comply with more restrictive student data privacy regulations. Today, the company has customers in four states, including statewide clients, as well as 85 percent of school districts in Australia.

"We have a very successful track record," Reynolds says. "Everything we say we will do, we've been able to exceed that."

**\$30,000 Division Winner Cash Prize**



## ENERGY/CLEAN TECH/WATER



In the Land of 10,000 Lakes and across the country, the economic impact of invasive species tops \$140 billion—an especially hard hit to rural areas that rely on tourism. Determined to reduce the spread of invasive species, environmental and natural resource scientists Ed Rudberg and Mark Apfelbacher launched CD3.

CD3's waterless cleaning stations help users clean, drain, dry, and dispose of debris and weeds from boats, trailers, ATVs, and other equipment. The stations are designed for boat landings and trailheads, encouraging users to keep their watercraft, vehicles, and hauling equipment free of invasive species like zebra mussels, milfoil, and purple loosestrife.

"One of the issues we have in Minnesota and throughout the United States is that we are loving our natural resources to death," says CEO Rudberg. "We want to provide a tool to do the things that many government agencies and nonprofits are asking people to do. We are saying, 'We're going to make it easy for you.'"

Longtime college friends, passionate conservationists, and hunting and fishing buffs, Rudberg and Apfelbacher were brainstorming ideas on how to turn public service messages about invasive species into action. They had a classic "notes-on-cocktail-napkins" night in 2015 when they developed the concept for self-serve cleaning stations.

After fleshing out the idea, the partners devised a stand-alone station complete with marine LED lights, a wet/dry vacuum, blower, and tethered hand tools to allow people to easily remove debris, water, and weeds in any kind of weather, day or night.

### \$30,000 Division Winner Cash Prize

It's an improvement on existing solutions, which are expensive because they require staff to operate high-pressure, high-heat equipment and a catchment for contaminated water, Rudberg says. The company also developed a version of its station that sits on a trailer for easy transportation.

In 2016, CD3 completed its design process with input from the Minnesota Department of Natural Resources, the University of Minnesota, and focus groups, thanks to a grant

from the Minnesota Pollution Control Agency. After lining up manufacturing in Minnesota, CD3 ran a pilot with five machines in 2017. That led to more grants and another 20 machines added this summer.

Meanwhile, CD3 has started selling its stations across the country. It has two sales channels: business-to-government including federal, tribal, state, and local municipalities, and natural

resources departments; and a business-to-business segment for marinas, trailheads, or other privately owned properties.

For Apfelbacher and Rudberg, CD3 is all about encouraging people to take action, whether they are motivated to promote conservation or protect their own equipment. "People like that on the balance between 'big brother' and 'fun uncle,' we're trending toward fun uncle. We don't want this to be about government overreach," Rudberg says. The end result is cleaner water and natural assets that stay pristine for all.



Ed Rudberg and Mark Apfelbacher

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**FOOD/AG/BEVERAGE**



# Nordic Waffles

Stine Aasland knew she found a fruitful business environment in Minnesota during the 2018 State Fair when fairgoers eager to taste her sweet- and savory-filled waffles formed lines that constantly wrapped around her stand.

Known as the Waffle Queen of Norway, Aasland started and built the biggest waffle company in a country where waffles are an all-day staple. When her partner opted out of expanding globally, Aasland sold her interest and moved to the United States to make a go of it. She landed at the Center for Innovation at the University of North Dakota in 2014, where she learned about the American business climate, wrote a business plan, and focused on launching her waffle company in the Twin Cities. She clinched her first customer at the Norway House in Minneapolis.

In 2016, Aasland began selling her waffle irons and frozen waffle batter to restaurants, coffee shops, and convenience stores. Taking her food truck to events across the Twin Cities helped Nordic Waffles build a strong reputation and fan base, and it prompted organizers of the 2018 "Bold North" Super Bowl in Minneapolis to request that Aasland sell her Nordic Waffles during Super Bowl Live.

The company's ability to quickly serve the masses—churning out 160 heart-shaped waffles an hour—helped Nordic Waffles land a spot at the Minnesota State Fair this summer. The strength of the product and healthy partnerships with vendors also powered a growth rate of 73 percent between 2017 and 2018, says COO Krista Peterson.

Vendors like that Nordic Waffles works with them to develop custom menu items to make their food offerings stand out. It helps that vendors typically add \$60,000 in annual revenue if they sell just 25 waffles a



Stine Aasland, Kathryn O'Brien, Jeremy Ely, Krista Peterson, Mary Jo Ramsbacher, and Kirk Freiberg

**\$31,000 Total Cash Prizes**

- \$30,000 Food/Ag/Beverage Division Winner
- \$1,000 Winner of Award Ceremony's Best Pitch

day, Peterson says. Another plus is that Nordic Waffles sells and services the specialty Danish-made waffle irons used to make its waffles, which are closer to a crepe. It cooks in under two minutes, compared with five to eight minutes for a regular waffle or sandwich.

The company now has two regional distributors that sell Nordic Waffles in 11 states, and it's working to go national. Will Nordic Waffles fly in Texas or Tennessee, which don't have the deeply rooted Scandinavian heritage of Minnesota? Peterson and Aasland think so. Nordic Waffles taste good with anything chefs can conjure, from brisket and salmon to breakfast fixings and sweet fillings with fruit, says Peterson, who joined the company after 13 years in management at Caribou Coffee.

"Our brand is redefining waffle culture in America," she says. "It took 10 years for the bagel to take off. I think the next generation is looking for something new and different and fresh, and they are getting that with this particular product."



## GENERAL

# NoSweat

It's a common woe for professional athletes, golfers, and construction workers when sweat runs down their faces, burns their eyes, and fogs up their protective eye-gear. Though sweatbands and helmet liners help, they don't completely solve the problem. Many have found a solution in a replaceable liner that effectively absorbs sweat.

NoSweat's liner, an absorbent polymer often used in diapers and pads, sticks to the inside of headgear such as helmets, hats, and visors. The company reengineered the material to absorb 100 times its weight by trapping sweat

and converting it to a gel. "The product is pioneering in this space—there's nothing like it," says CFO Jon Marshalla. "We knew there was a need, and we solved a problem."

Developed by CEO Justin Johnson for a college entrepreneurship class at Gustavus Adolphus College, the idea for NoSweat dates back to 2008. It took a few years for Johnson and his team to perfect No Sweat's performance liners and ready them for sale. NoSweat first broke through with professional hockey referees and players in 2013, attracted private investment in 2015, and, in 2017, lined up a Minnesota manufacturer that could continue to scale its production.

NoSweat gained significant traction by securing professional athletes in football, baseball, hockey, and golf as brand ambassadors. Today, all National Hockey League teams and the NHL Officials Association are repeat bulk customers, and NoSweat is an officially licensed product of the Professional Golfers' Association Tour. The company also sells directly to consumers through Amazon

and is in talks with several big-box retailers to carry NoSweat in early 2019. Sales are increasing at a fast clip, growing from \$500,000 to nearly \$1 million in 2018, Marshalla says.

Beyond the sports market, NoSweat is



Collin Iacarella, Justin Johnson, Anna Ewald, and Jon Marshalla

making inroads with other sectors, including the military, law enforcement, food service, industrial, construction, and other occupational settings. "We've

identified over 200 million potential customers in 30 market niches," Marshalla says. "That's a really addressable market that doesn't take international sales into account."

NoSweat's liners need to be replaced often—usually a couple times a game for professional athletes or after two to three games for casual players or golfers. Next, the company will focus on expanding sales to the military and extending its reach to amateur, high school, and college athletes.

Prospects are good for NoSweat, Marshalla says. People who try the liners are quickly sold on them; 60 to 70 percent are repeat customers. "Once customers try it, they are hooked and keep buying it," he says.

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## IMPACT VENTURES

### Recovree

After struggling with addiction for 15 years, Luke Kjolsing successfully completed treatment. He and his family sought ways for him to continue receiving support during the often-fraught transition between rehab and sober living. Ultimately, Kjolsing and his sister, Melissa Kjolsing Lynch, decided to create tools that help people maintain their recovery, focusing on the concept of peer support.

Peer support specialists play an increasingly important role in the recovery process by bringing firsthand knowledge of substance abuse to help people stay sober. Peers are trained non-clinicians who serve as guides, coaches, and connectors to resources.

The siblings started Recovree in 2017 to provide individuals with substance use disorder (SUD) with resources that foster coping skills and to help peer support specialists do their jobs more efficiently and effectively. There was nothing like it on the market. "We want to bridge some of the gaps for people in treatment," says Kjolsing, chief recovery officer. "They graduate from treatment, but a lot can fall off (the wagon) because they go back to their old environment or they haven't developed the skills to cope with their disease."

Supporting peers and people in recovery is vital because more than 21 million people have substance use disorder, and 40 percent to 60 percent relapse after treatment. Research from the federal Substance Abuse and Mental Health Service Administration found that peer specialists improve engagement, medication adherence, and substance abuse admission rates, says CEO Lynch.

The siblings created a trial product and tested it with people in recovery, discovering that 100 percent reported that it contributed to their sobriety. Then they met with more than 100 people in the recovery community, including health care providers, insurance compa-



Anne Westman, Jeff Larson, Jenna Pederson, Luke Kjolsing, and Melissa Kjolsing Lynch

nies, and nonprofits to collect feedback.

Next, Kjolsing and Lynch developed an app and software platform that serves both patients and peer specialists. Recovree's tools provide an outlet for people with substance use disorder to record daily reflections, experiences, and emotions, as well as identify goals and navigate resources. Peer support specialists use these entries to ask deeper questions, make observations, and provide more individualized support to clients.

"This helps peers peel back the layers and see from the weekly snapshot what an individual is experiencing," Lynch says. "Instead of just asking, 'How are you doing?' they can jump into the weeds and say, 'It looks like employment is a major stressor this week. Let's talk about that.'"

After testing, Recovree started selling its platform in August to treatment programs that employ peer specialists. It recently won North Dakota's Innovate Recovery competition, a program started by the governor and first lady. And there's more potential for Recovree, Lynch says, because its platform works for other behavioral health issues like PTSD, eating disorders, and anxiety.

"For human beings in general, it's sometimes hard to be vulnerable," Lynch says. "But when you have the ability to connect one-on-one through the device and not feel judged, and to know that someone is using the information to support you, it's a powerful result."

#### \$55,000 Total Cash Prizes

- \$30,000 Impact Ventures Division Winner
- \$25,000 Carlson Family Foundation's award for top woman-led startup

## STUDENT



As a student at the University of Minnesota, Peter Schultze was surprised to see how little attention many of his peers paid to their health and wellness. Late nights, junk food, and little exercise were the norm. It gave him an idea: What if there were a way to reward students for making smart and healthy choices?

Schultze, a junior majoring in entrepreneurial management, teamed with software developer Justin Buhl to start Plyo, a loyalty app that rewards college students for exercising at their university's recreation facilities. Each time students exercise, they earn points, which they can redeem for discounts at area restaurants, coffee shops, and stores.

"Being a student, you can make choices that stick with you for the rest of your life," says Schultze, who is CEO. "Tons of research shows that students who get exercise stay in school, earn better GPAs, and graduate on time. We're aiming to help universities improve student wellness and academic outcomes."

When students enter a recreation building, they are automatically logged into Plyo. They earn points as long as they are in the facility. The more time they spend exercising, the more points they earn. They earn additional points when they exercise with friends. At the same time, participating brands gain the opportunity to connect with new customers and build loyalty through discounts.

Schultze developed the idea for Plyo in 2016 during his freshman year but was focused on a different business at the time. The

veteran entrepreneur has started a record label for kids, a clothing company, and an internet marketing agency. He fleshed out Plyo for a class, secured grant money from the Carlson School of Management to pursue it, and built a test website in 2017. Buhl, co-founder and CTO, signed on to help once the partners saw that the idea had promise.

"We think if we can get more people in the facilities, there is a much greater likelihood that they will start to use them," Schultze says. "They're in a new environment, seeing people exercising and being healthy. There is a much greater likelihood that they will do that as well."

The app went live at the U of M at the end of spring semester 2018 so Plyo could test its concept. In the first week, 150 people had signed up, and without any marketing it quickly had 700 users. Buhl and Schultze redesigned the app and relaunched it this past fall, attracting 2,000 users. So far, people who join Plyo typically bring along four other users.

Plyo will expand to a few other college campuses to continue gathering data and verify proof of

concept, then go national. The selling point for universities, Schultze says, is that helping students improve their health and well-being has multiple benefits, such as stronger engagement in school and better academic performance.

"We're trying to build a community," he adds.

"It's rewarding for people who are taking their health seriously."



Peter Schultze and Justin Buhl

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## YOUTH

### Studioso

Music students and teachers share a similar frustration with practicing, making it the leading reason students quit playing music. Students don't necessarily know what or how they should practice, while teachers struggle to hold students accountable and make practicing worth their time.

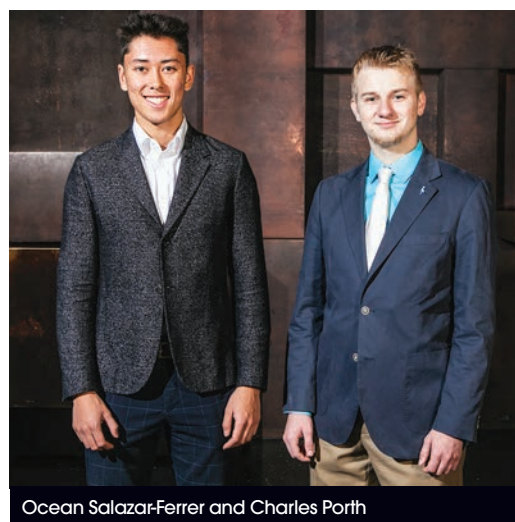
Ocean Salazar-Ferrer came up with a solution called Studioso, an app that aims to eliminate music frustration and help students practice more effectively. By tracking their progress and making the most of their practice time, students of all ages and abilities can get and stay motivated, says Salazar-Ferrer, the founder and CEO, who is now a freshman at University of Southern California.

"Lots of students don't want to practice because they put in time and effort and don't make progress in return," Salazar-Ferrer says. "We make practicing easier and we make learning new concepts go faster with its features."

A violin player for 14 years, Salazar-Ferrer experienced some of the inefficiencies and frustrations with getting the most out of practicing. He brought together four fellow students from Edina High School—Ricardo De Saracho, Luke Langefels, Charles Porth, and Brendan Will—to develop the Studioso app in 2017.

Studioso launched the beta version of its app in spring 2018, then spent the summer tweaking and refining its offerings based on feedback. The company will mainly operate as a business-to-business product, targeting schools from junior high to college, private music schools, and individual instructors. Eventually, students will be able to purchase a subscription to Studioso.

Music teachers benefit from the Studioso app by being able to communicate their instructions more clearly to students. The app helps them listen to students' recordings and keep lessons and instructions organized for individuals, ensembles, and bands. Teachers also can visualize students' progress with the number of practice sessions, total minutes,



Ocean Salazar-Ferrer and Charles Porth

or time spent on a certain technique.

Studioso helps students by offering multiple layers of support, including receiving clear, written instructions from their teachers about practice goals and technique objectives. In addition, they may take advantage of practice tracking, statistics, and the ability to submit recordings for specific feedback.

Studioso provides access to the first app-based collection of practice methods through its technique library, which covers 100 techniques, explains Salazar-Ferrer. Teachers select a technical focus for each week, such as rhythm or intonation. Students then search the technical library by instrument or music type to work on improving that technique in whatever style inspires them.

"The way we look at it, we're helping students go above just learning music. It's about understanding and growing as a musician," Salazar-Ferrer says. "Teachers like that Studioso focuses on artistry and musicality rather than just grading students. It really develops students' musical ability because of the emphasis on students listening to themselves and improving, while taking the initiative of learning."

**\$10,000 Division Winner Cash Prize**



## HIGH TECH

### Billiyo Health (Runner-up)

As much as electronic medical records and automation have taken over hospitals and medical clinics, the home health care industry lags behind. Paper files are generally still the norm, making for less-efficient operations.

Hassan Abdullahi, a veteran software entrepreneur, sought to pivot his technology for the logistics industry to a new sector. A friend encouraged him to consider home health, where the bulk of agencies are small but complex businesses. Billiyo Health provides agencies a comprehensive system for making appointments, scheduling employees, billing, accounting, medical records, communicating with staff and families, and more.

Earlier this year, CEO Abdullahi started reaching out to agencies with Billiyo's offering. Most sign up, he says, because Billiyo saves them money and provides more accurate and faster billing and reimbursements. Abdullahi sees plenty of opportunity in the country's quickly expanding \$93 billion home health industry.

### Protocol 46

Harnessing the decades of military cyber-intelligence experience of its four founders, Protocol 46 offers comprehensive cybersecurity services to small and medium-sized businesses, which often struggle to find protection they can afford. Many rely instead on off-the-shelf products that don't provide end-to-end coverage or protect against constantly evolving threats.

"We believe in helping small and medium businesses with the holistic defense they need," says Barry Schalkle, co-founder and director of strategic partnerships. "We protected America when we were in the military and that's what we're still trying to do."

Protocol 46 stays affordable by providing subscription services to clients based on their number of endpoints—users and devices. Clients receive daily network assessments and 24/7 protection, plus cybersecurity testing and breach responses. Founded in 2015, Protocol 46 recently completed beta testing, attracting an investment of \$1.1 million to continue launching its cybersecurity platform.



## LIFE SCIENCE/HEALTH IT

### Mill Creek Life Sciences (Runner-up)

As human cell therapy becomes even more deeply ingrained in medicine, it's been difficult to keep up with stem cell production to meet demand. Mayo Clinic invented a platelet-based compound that grows stem cells remarkably fast, spinning it off as Mill Creek Life Sciences in 2010.

The company sells its compound for research and production of cell-based therapies that treat conditions like multiple sclerosis and ALS. Along the way, Mill Creek made a discovery. It turns out that while stem cells continue growing, they turn into tumors that don't mutate like typical cancers, giving researchers a fruitful platform for testing cancer therapies, explains CEO Bill Mirsch.

Mill Creek used the platform to develop its own vaccine therapy for glioblastoma, a brain cancer, that is showing significant success in clinical trials, Mirsch says. Its technology also has potential to develop treatments for other cancers like osteosarcoma.

### Thaddeus Medical

Every year, \$35 billion in biomedical samples and medications are lost globally due to temperature-control problems during shipping. Thaddeus Medical aims to move beyond the ice and cardboard method of transportation with its iQler, a smart container that automates temperature control.

Steve Scully spent four years as a research associate at Mayo Clinic in pharmacology, neuroimmunology, and pathology, where he saw the problem up close. Aiming to update the "ice age" technology, Scully developed a data-driven device with a team of engineers and scientists.

The iQler is a thermoelectric unit featuring six compartments with different temperatures, real-time tracking, automated documentation, and security. Thaddeus is powering up beta testing, with plans to start manufacturing and selling the iQler in 2019. The company has a large playing field for sales, Scully says, including hospitals, labs, pharmaceutical businesses, and logistics couriers.



## EDUCATION AND TRAINING

### Virtue Analytics (Runner-up)

Passionate about data-driven decision-making, Vikas Mehrotra started Virtue Analytics to help solve business problems by delving into the numbers. Mehrotra realized while consulting for various sectors that higher education particularly needed help with interpreting large data sets.

In 2018, Mehrotra created a data analytics tool that helps schools make informed decisions about admissions and financial aid. A cloud-based system called the Merit and Need Based Optimization and Allocation Tool (MAN-BOAT) guides colleges and universities to better allocate scholarship funds and build strong applicant pools.

Only 34 percent of college students graduate in four years, leaving students with high debt. While schools have ample financial aid, they often waste revenue by overfunding some students and underfunding others. Using hundreds of variables, MANBOAT helps schools analyze their data and discover ways to make effective decisions about their processes and potential students.

### Cytilife

The United States has the highest college dropout rate in the industrialized world, with mental and physical well-being and time management concerns the most common reasons. To improve student experiences and outcomes, Sabina Saksena combined her experience with the Internet of Things (IoT) and artificial intelligence.

Saksena started Cytilife in 2015, developing a platform that helps students make the most of their time, as well as use universities' services that foster health and engagement. Its first offering is a three-part service for Georgia Tech, called Gtilyfe. It includes a smart assistant for students, a smart campus that gives real-time information about wait times at the gym and cafeteria, and tools that help schools gain insight about students' resource use.

Cytilife now has three universities using its platform. It is also suitable for corporate campuses, residential communities, and hotels, Saksena says.



## ENERGY/CLEAN TECH/WATER

### Remooble (Runner-up)

As scientists who focus on green chemistry, Tess Fennelly and Bart Engendahl have made it their mission to take more safe, sustainable products to market. To start, they focused on removers, developing nontoxic but effective materials that strip paint, eliminate whiteboard marker, and remove adhesives.

They kicked off Remooble in late 2017, building a line of products infused with a key food additive. Its first offerings are a whiteboard marker remover that erases ghosting or shadows without damaging the surface and a paint remover for wood, drywall, and windows, says Fennelly, CEO and chief commercial officer.

The partners use their industry experience to quickly evaluate ingredients and create products, manufacturing them in Minnesota, Fennelly says. Next year, Remooble plans to bring several new products to market, including adhesive and graffiti removers, as well as paint stripper for industrial uses.

### Clearwater BioLogic

Pit lakes often form at abandoned taconite mining sites, becoming prime collectors of sulfate. Sulfate that leaches into groundwater, creeks, and rivers causes problems for wild rice growers, wildlife, and people.

Clearwater BioLogic developed a bioreactor system that uses bacteria to remove sulfate from the water year-round. Floating below the surface, the bioreactor's modules each hold 4,000 gallons of water. The modules contain non-biodegradable plastic fiber from recycled carpet, giving the sulfate-eating bacteria a place to live and work. The bioreactors regularly remove at least 90 percent of sulfate in lakes.

"We can process a lot more water because we have the bacteria in the bioreactor at a low cost. It's a real paradigm shift from any bioreactor out there," says Jeff Hanson, a partner with Bill Newman and Rob Scarlett, who formed the company in 2018.



## FOOD/AG/BEVERAGE

### Superior Switchel (Runner-up)

Melina Lamer is going old school with Superior Switchel, creating a drink and mixer that harkens back to 17th century New England. Switchels are known as nature's sports drinks, and they tap into the trends of fermented health beverages.

As a hockey player at St. Olaf College, Lamer followed her grandma's recommendation to put apple cider vinegar in her ginger tea for rehydration. Through research, Lamer found that a similar beverage is called switchel, a refreshing drink that restores electrolytes with the addition of water and honey or maple syrup. She started making large batches of switchel and selling it at Twin Cities farmers' markets in 2014.

The certified-organic sparkling drink comes in honey cinnamon, orange maple, or lemon lavender, and it's sold at grocery stores, cafés, and co-ops in the Midwest. Lamer aims to expand to the Pacific Northwest, where Superior Switchel is manufactured, and then has plans to go national.

### North American Green Pulp

After wheat harvest, farmers often plow over the leftover stalks or burn them, which not only creates pollution, but wastes a valuable resource. Hua Sun started North American Green Pulp (NAGP) to make the most of this biomass, transforming it into pulp fiber for paper products.

An agricultural and food engineer, Sun developed a process that uses bacteria and enzymes instead of harsh chemicals to turn wheat stalks into pulp. He aims to reduce deforestation by offering an alternative base material for environmentally friendly paper products, which could be made domestically instead of imported.

Farmers benefit, too. By selling their wheat stalks to NAGP, farmers generate additional revenue and receive carbon nutrients in return. These nutrients keep their soil fertile and healthy. Sun is making plans to build the company's first plant, eventually licensing its technology to others.



## GENERAL

### UpCraft Club (Runner-up)

For many people who sew, dealing with paper patterns is one of the least enjoyable parts of the process. Elizabeth Caven launched UpCraft Club in 2015 to help sewing enthusiasts shop for vetted and reviewed printable patterns.

That business took off, but Caven found that it didn't fully ease sewers' pain. They still needed to print the patterns and cut, iron, and pin them to fabric. Now Caven is bringing sewing into the 21st century with her latest development: a mini-projector and tripod that wirelessly projects patterns onto fabric. Called the KITE paperless sewing system, the product and its app give customers easy access to 1,500 digital patterns in UpCraft's library. It's the first paperless sewing pattern system for home use, says Caven.

She believes that when KITE hits the market in 2019, many of the 20 million-plus sewing fans in the United States will be game.

### Relamp

Why shouldn't light bulbs be fun? That was the premise Jess Schaack used to launch Relamp, her printed light bulb company. Eager to incorporate exposed light fixtures in her new home, Schaack started shopping for patterned light bulbs but came up empty.

She and husband Rob decided to invent their own, testing 25 prototypes before developing a viable product. Relamp has multiple patents pending for its process to print specialty ink onto glass.

The LED bulbs come in 12 colors and patterns, including giraffe, color swirl, and wood. They glow without projecting a pattern on the wall, an important feature for CEO Schaack. Drawing from her marketing experience at Tiffany & Co. and Target, Schaack is determined to make light bulbs an important part of home décor.

Relamp got its first bulbs to market in 2018, selling online and at a variety of stores in the Twin Cities and Chicago.





## IMPACT VENTURES

### Mobility 4 All (Runner-up)

When John Doan's brother Roy became disabled and could no longer drive, he experienced firsthand the difficulty of managing Roy's transportation while juggling other responsibilities. Doan couldn't find a company with vetted drivers that offered what he calls door-through-door services, such as helping clients get from their residences to the dentist or salon chair.

Doan created a service to help seniors and people with disabilities—and their families—gain peace of mind and reliable transportation, starting Mobility 4 All in 2017. The company took its MO app for a test run this year in the northern suburbs.

Customers can schedule regular driving appointments or call for last-minute rides. Family members or caregivers can schedule, track, and pay for trips on clients' behalf. With a successful trial under their belt, Doan and his team are seeking funding to expand service to the rest of the Twin Cities.

### Depart Smart

Sheryl Hill is on a mission to help people travel the world safely, in honor of her teenage son who died a preventable death while abroad. She started Depart Smart to provide safety training to the 87 million Americans who travel around the globe each year.

Depart Smart offers online courses on travel safety and Travel Heroes certification, which help leisure travelers prepare for emergencies and mishaps by doing things such as visiting a travel clinic to update vaccines, registering travels with the State Department, lining up travel medical insurance, and learning their destination's emergency phone number.

Hill started Depart Smart in 2010 and grew the nonprofit side of the organization. In 2016, she started working on its for-profit subsidiary. Depart Smart works with corporate wellness programs to offer services through employee assistance programs and leads webinars and workshops.



## STUDENT

### DaVinci Industries (Runner-up)

It's no easy feat being a brick-and-mortar retailer in an online world. Inspired to create a solution that makes those retailers' lives easier and more profitable, Anthony Valiulis is focused on making traditional peg-hook displays more functional, so employees don't have to constantly pull merchandise forward on the displays.

A senior at St. Olaf College, Valiulis secured a college grant that helped him start DaVinci Industries and develop its first product, Acutrack. The front-facing peg-hook display automatically slides product forward when customers remove the first item, saving retailers time and money. "We're trying to bridge the gap between e-commerce and brick-and-mortar stores," he says.

Soon DaVinci will offer Acutrack with radio-frequency identification technology (RFID), which will help retailers automate inventory management. It alerts them when products need restocking, preventing sales loss from empty shelves. DaVinci launched sales in 2018 and is planning to offer the RFID version in 2019.

### Runerra

Have you ever run out of milk or craved a burrito late at night and longed for a friend or neighbor to pick it up for you? Four University of Minnesota undergraduates developed a way for people to get what they want while others make a few bucks for their trouble.

Called Runerra, the app connects users with others in their dorm, office, senior building, or neighborhood and enables them to run errands for each other. So when Bob in accounting goes for afternoon coffee, he sets his fee, takes his desired number of orders, and delivers. Runerra makes money off of fees on both sides of transactions.

"We're taking advantage of existing behavior. People don't always take advantage of the power of the community around them," says CEO Bharat Pulgam. The Runerra team participated in the Target and Techstars retail accelerator program and launched its app in the fall.



## YOUTH

### Solupal (Runner-up)

Dismayed by the amount of plastic waste generated in the United States, including 100 billion plastic bags annually, a team of Mounds View High School students decided to help by developing an eco-friendly alternative.

The six-member team discovered polyvinyl alcohol, a water-soluble material used in laundry pods and 3D printing, and made it into plastic bags, says CEO Michael Cao. They entered their company, Solupal, in several business competitions and won prize money along the way. That helped Solupal kick off manufacturing in Indiana this year.

The bags are durable, hold up to 25 pounds, and can be reused repeatedly. When users are finished, they throw their bags in the washing machine or dissolve them in water, causing no harm to the environment, says Diana Zhu, head of marketing. The team is now focused on marketing and distribution, with several local stores already using Solupal bags.

### InstaCare

Preston Chan saw how hard it was for his family to find home care for an ill relative. People either weren't available last-minute or they didn't want to work part-time. With friends Nick Gordon and Ryan McCarthy, the Minnetonka High School students are creating an on-demand solution for hiring caregivers.

InstaCare will offer two lines of service: specialty care, such as nursing, and general care, such as yard work, rides, or grocery shopping. Customers or their relatives will be able to use the InstaCare app to search for caregivers in their area, evaluate their qualifications and reviews, and arrange for care.

Caregivers turn on their availability when they want to work, making it the perfect gig for people with flexible schedules such as college students and retired people. Caregivers would be self-employed individuals, allowing InstaCare to hire more people and keep costs down, Chan says. The company would take 25 percent of the caregivers' hourly wages.

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