THE Link

ADVANCING CAREER EDUCATION IN THE 21ST CENTURY

APSCU
ASSOCIATION OF PRIVATE SECTOR COLLEGES AND UNIVERSITIES

How Did They Do That?

Innovation Nation: Career Colleges Reinvent the Wheel

Troy Heien, a WyoTech alumni, designed an unstoppable wheel. See more PSCU graduate innovations on pg. 12.

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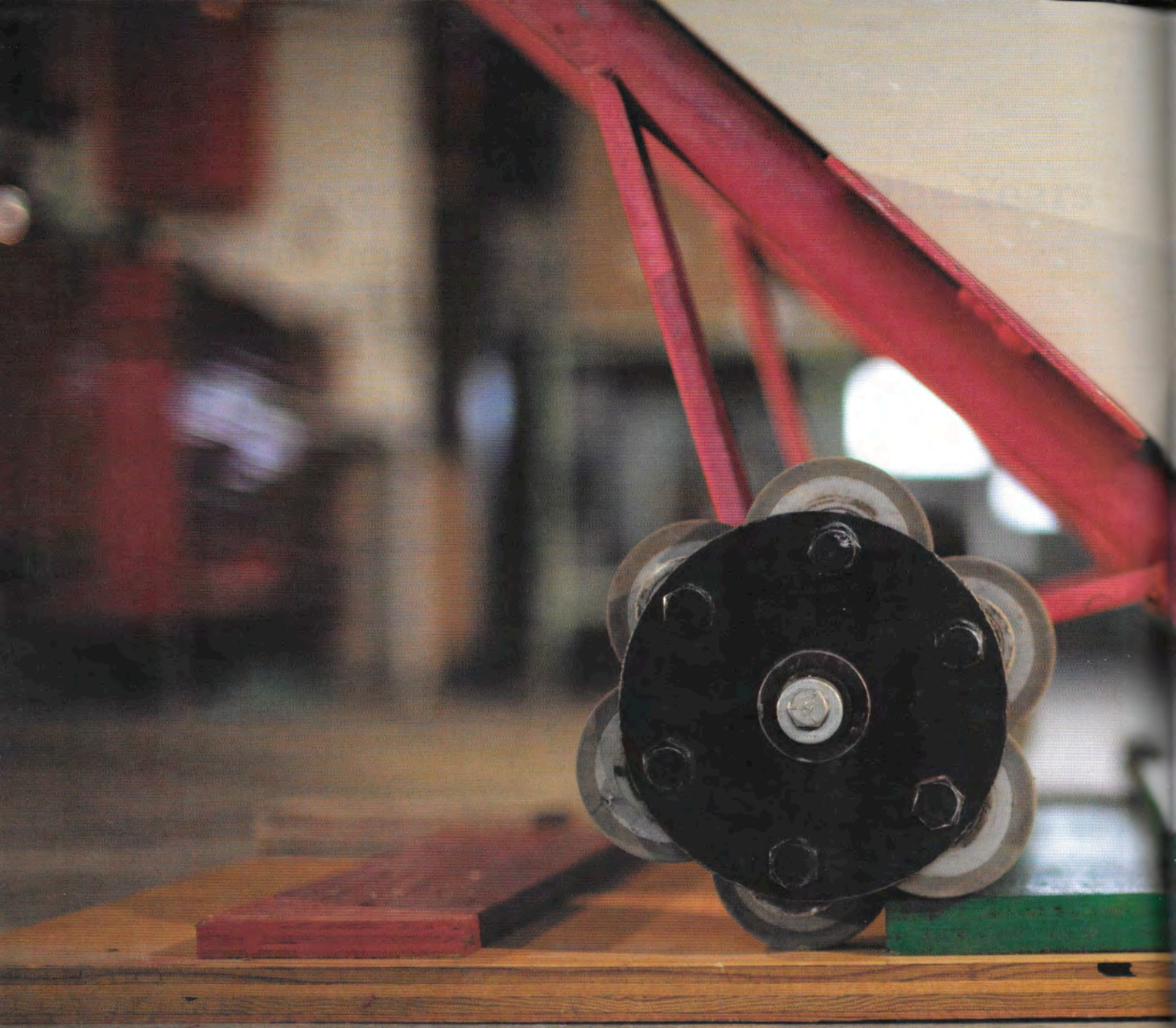
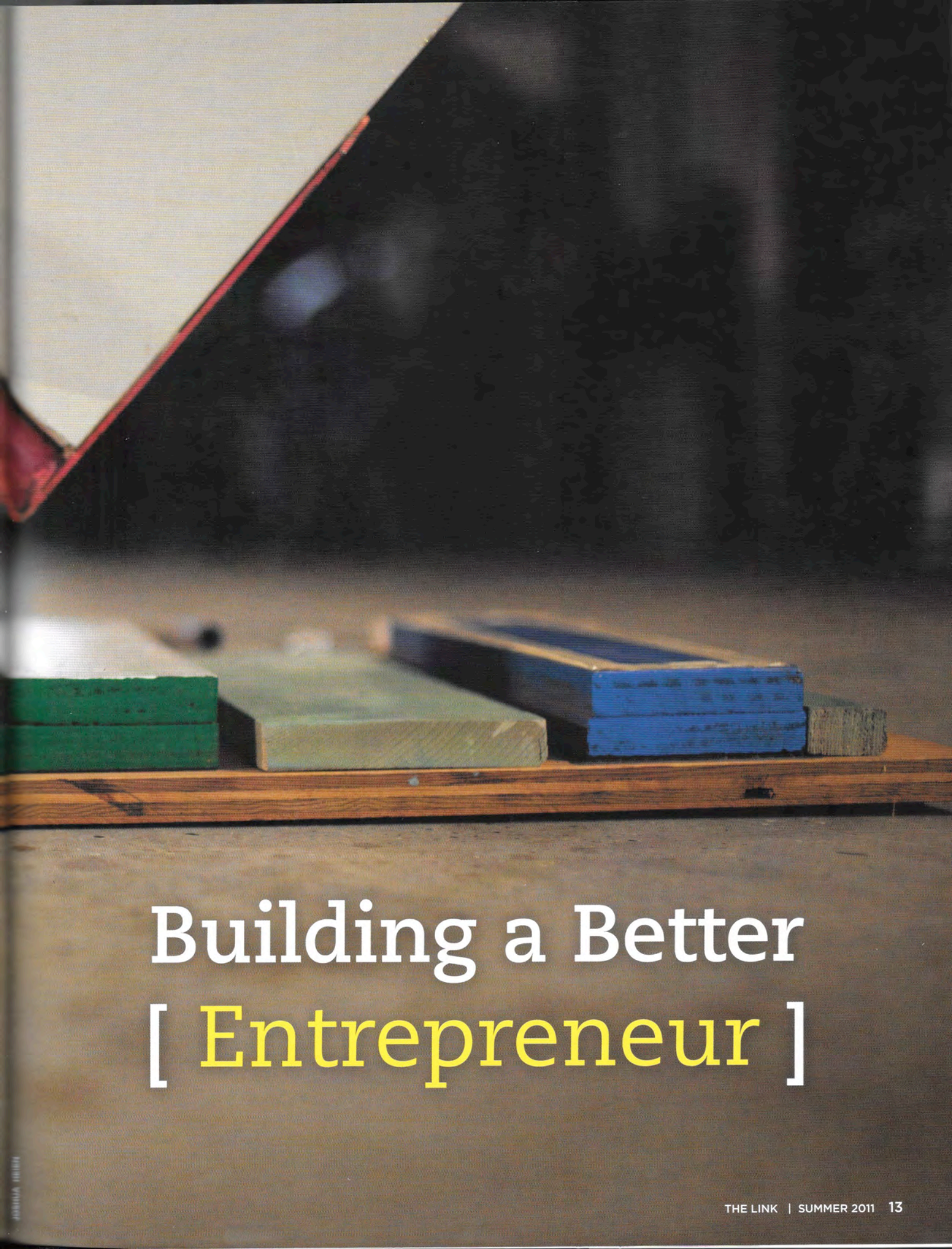


Troy Heien, a graduate of WyoTech, has reinvented the wheel: Its unique design allows it to transverse curbs and other obstacles.



Building a Better [Entrepreneur]

Have you ever encountered something during the course of your day—a product or a process—and thought, "that could be so much better/tastier/easier/faster/safer/quieter"? It might be a simple product, such as a rope, or a complex product, such as safety equipment. It could be a process that is seemingly cemented in time, like the act of snapping a photograph, or a newer process, such as interacting with a computer. Whatever "it" is, most of us just shrug our shoulders and put up with the inefficiencies or glitches presented – much as we do with the other small indignities life throws at us.

But that doesn't work for everyone; some people are destined to innovate and build us a better world.

We wanted to know what innovation looks like at career institutions, and as it happened, we did not have to look too far. At private sector colleges and universities (PSCUs) from coast to coast, students and instructors are building better products, reframing existing systems, and (in one case) quite literally reinventing the wheel.

We discovered individuals who decided to take action—PSCU graduates and instructors who looked at certain situations and said to themselves, "there's got to be a better way."

The innovators we encountered say they used the training they received from a career college to find that "better way." Some even sought out a career college specifically, confident that the institution would provide them with the skills they would need to turn their ideas into reality.

Cooking up Success

Rhett Haynes, 35, of St. Louis, Missouri, had a background in psychology and a fair amount of restaurant experience under his belt, when, in 2006, he enrolled in L'Ecole Culinaire in St. Louis to pursue a degree in restaurant management.

Along the way, the menu changed.

> "Most of the other chews on the market are sugar-based. Ours uses a patented lipid-based system to deliver the ingredients. As a result, our chews don't have a medicinal taste."
>
> —Rhett Haynes, L'Ecole Culinaire

Haynes quickly realized that most of his classmates dreamt of becoming executive chefs or opening their own restaurants someday. He began to wonder if there was another way to make a living that combined his love of cooking and creating food with a desire to avoid long hours spent standing in a hot kitchen all day.

One of his instructors, Chef Michael Milster, opened Haynes' eyes to another path. Milster explained to his students that chefs didn't all have to work in restaurants. They could develop food products that are sold in grocery stores, convenience stores, and other retail outlets. The seed of this idea was planted in Haynes' mind.

After graduating, Haynes went to work at the Ritz-Carlton, St. Louis, as the wine director. But that idea of developing his own food products continued to grow.

One day, while watching a mixed martial arts fight on television, Haynes and his brother Lance were taken by all the energy drinks and supplements being advertised: Red Bull, Amp, Monster, and energy shots like Five Hour Energy were ubiquitous. The brothers were intrigued by the energy sector, but thought the drink side might already be saturated.

That is when Haynes' creativity and problem-solving instincts kicked into high gear: Energy chews, resembling taffy, are a relatively new entry into the energy supplement market. After careful consideration and lots of research, Haynes and his brother decided they could make a better chew.

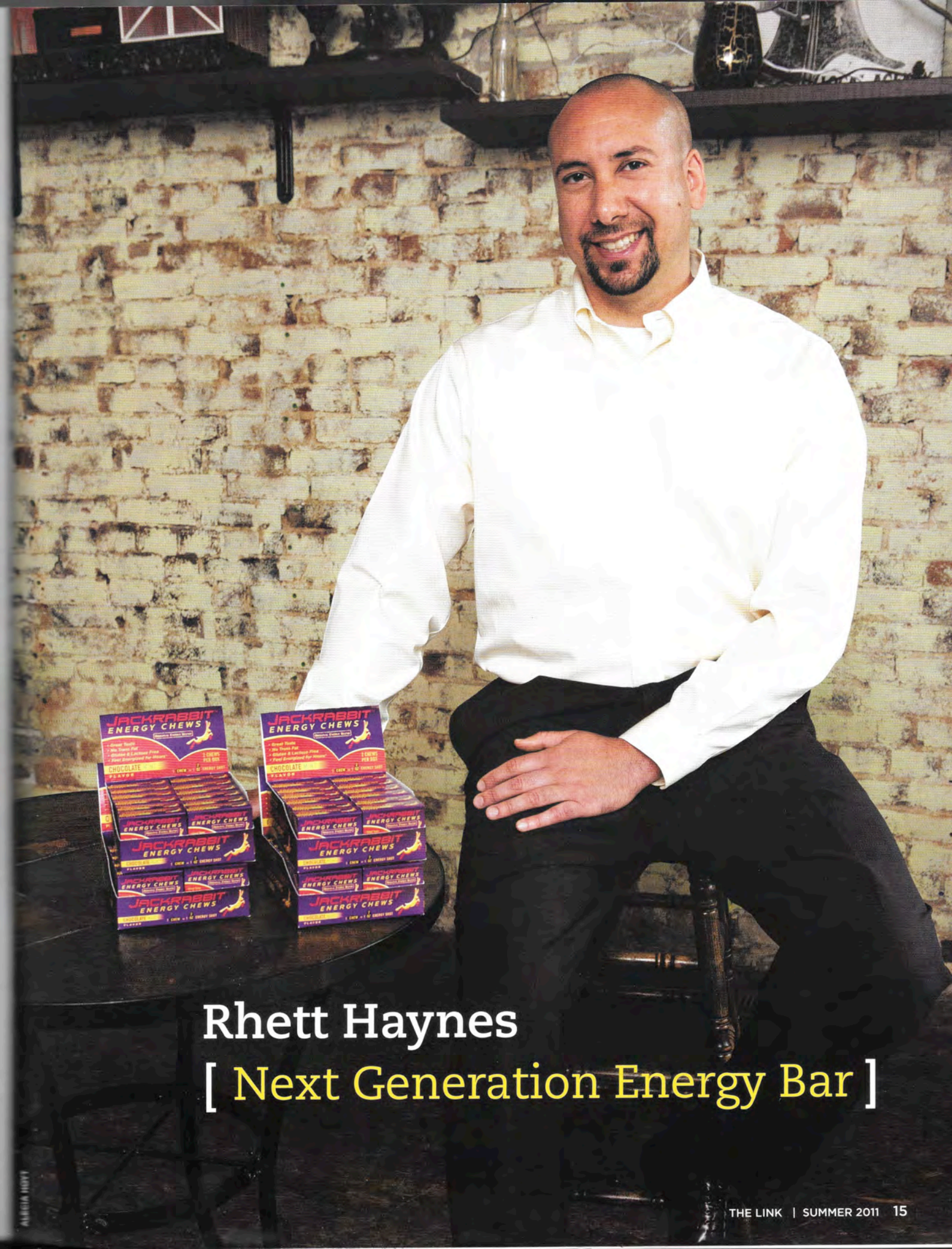
They cashed out their 401(k) accounts and launched Jackrabbit Energy Chews, determined to make their energy supplement better than all the rest through innovation.

"Most of the other chews on the market are sugar-based," explained Haynes. "Ours uses a patented lipid-based system to deliver the ingredients. As a result, our chews don't have a medicinal taste—a taste our competitors try to mask by adding sugar." (Lipids are naturally occuring molecules which can store or transport nutrition or fatty acids.)

But Haynes and his brother weren't done improving their product. They watched as regulatory scrutiny intensified on the energy supplement sector, and they decided to get ahead of the curve. They decided to manufacture their chews in an FDA-regulated facility. Few, if any, other energy products take this extraordinary step, Haynes says.

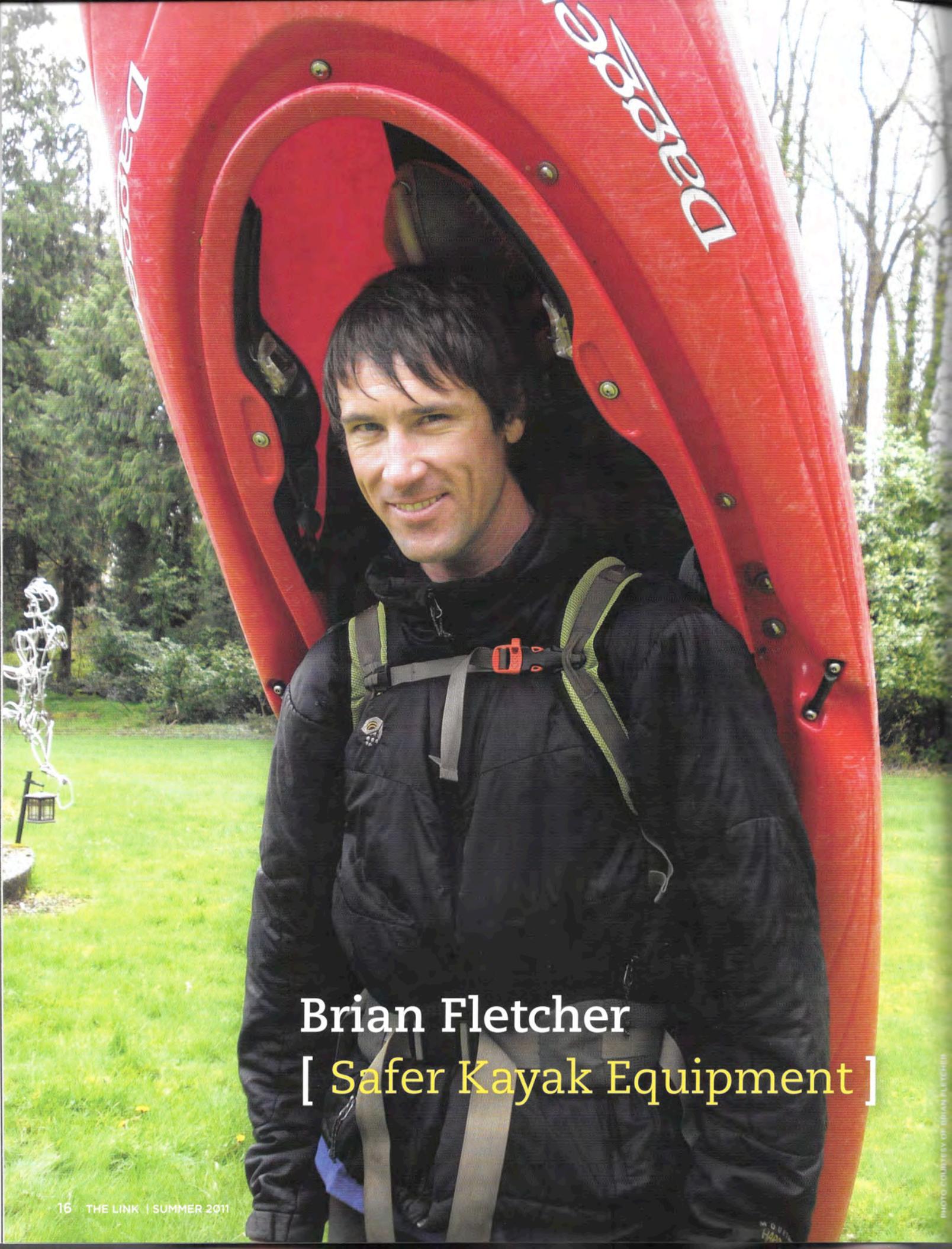
Haynes' education from L'Ecole Culinaire also helped him develop the flavors for the chews. The first supplements Haynes created were chocolate mint flavored; lemon-lime and black cherry are following.

Today, Jackrabbit Energy Chews are sold in 45 stores in the St. Louis area and Haynes says the reception has been fantastic. He's happy with his decision to pursue a product as opposed to a restaurant career, and he's looking forward to growing the brand and expanding the reach of his product. He's gone back to L'Ecole a few times to share his stories with students—and no doubt, to thank Chef Milster for opening his eyes to a different path to success.



Rhett Haynes
[Next Generation Energy Bar]

ALEGRIA HUYT



Brian Fletcher
[Safer Kayak Equipment]

PHOTO COURTESY OF BRIAN FLETCHER

Using His Head to Protect Yours

Meanwhile, further west, another inspired innovator decided to head to a PSCU to gain the skills he'd need to improve consumer safety devices he used regularly.

Brian Fletcher, 32, loves the outdoors, and he wanted a career that would allow him to work outside, which is why he first earned a B.S. degree in landscape design from Montana State University in 2003.

Fletcher also participated in a number of outdoor adventure sports—most notably, white water kayaking. He even started and ran a Montana kayaking school from 2002–2006. His friend, Nick Turner, started a small company to improve and manufacture kayaking helmets. Familiar with Fletcher's vast knowledge of the sport and industry, Turner asked Fletcher to accompany him on a tour of helmet manufacturing facilities in Asia.

"While there, it became painfully obvious to me that we were not using our time productively," recalls Fletcher. "We needed a full-fledged designer to accomplish what we were trying to do. It spurred me to go back to school."

COURTESY OF BRIAN FLETCHER

Art Institute graduate Brian Fletcher knew he could build a safer, lighter helmet for kayakers. And so he did.

> "It became painfully obvious to me that we were not using our time productively. We needed a full-fledged designer to accomplish what we were trying to do. It spurred me to go back to school."
>
> —Brian Fletcher, Art Institute of Seattle

So, Fletcher enrolled at the Art Institute of Seattle in the industrial design program—a course of study he completed in March 2011. Going back to school was a smart choice, Fletcher says, adding that in contrast to his time as an undergraduate at Montana State, he took his education much more seriously, maintaining a sharp focus on his overarching goal—learning to design sport safety equipment.

"Every class I took I was able to shape into a project that I wanted to do," Fletcher says.

In addition to designing a safer, snug-fitting kayak helmet, Fletcher also designed a soft, kayak-specific backpack that enables the wearer to carry a 100-pound kayak on his back, the better to comfortably and efficiently—and single-handedly—carry the watercraft to remote river put-ins. The cleverly designed backpack has no rigid pieces: it folds up and is easily stowed back in the kayak once the kayaker is on the water.

Fletcher also came up with an ingenious new design for throwbags—a safety device used by kayakers, canoers, and whitewater rafters. As its name suggests, a throwbag is a lightweight nylon and mesh bag stuffed with a length of rope that can be thrown from the shore to a kayaker in distress on the water. Once the rope is out of the bag, it can be quite difficult to reload the bag—especially out in the middle of nowhere. Another limitation on existing bags is that it is a two-person rescue system—the person in jeopardy must have someone throw the bag to him.

Fletcher, though, came up with a way to build a better throwbag. His version has a different loading mechanism, one that is easier to reload. It also has a harness that allows the kayaker to wear it about the waist while on the water. This simple alteration now means that the kayaker can get out of trouble, without help from shore.

Fletcher says he saw deficiencies in the recreational equipment he was using, but rather than just complain about it, he came up with the solution. He sought out an educational program that would give him the tools he would need to improve that equipment, and now he's looking forward both to licensing his designs, and to a long career designing safer recreational equipment.

Focusing on Innovation

Here is another picture of a career school graduate who combined new technology with an old technique; the result is an innovative approach to portrait photography. Glen Perotte was born in London some 40 years ago and raised in Brooklyn. When he talks, hints of both distinct accents pepper his speech. Perotte says he was always interested in photography, and he studied at the prestigious School of Visual Arts in New York. But before he finished his degree he was "lured" to Europe to work as an assistant to successful commercial photographers.

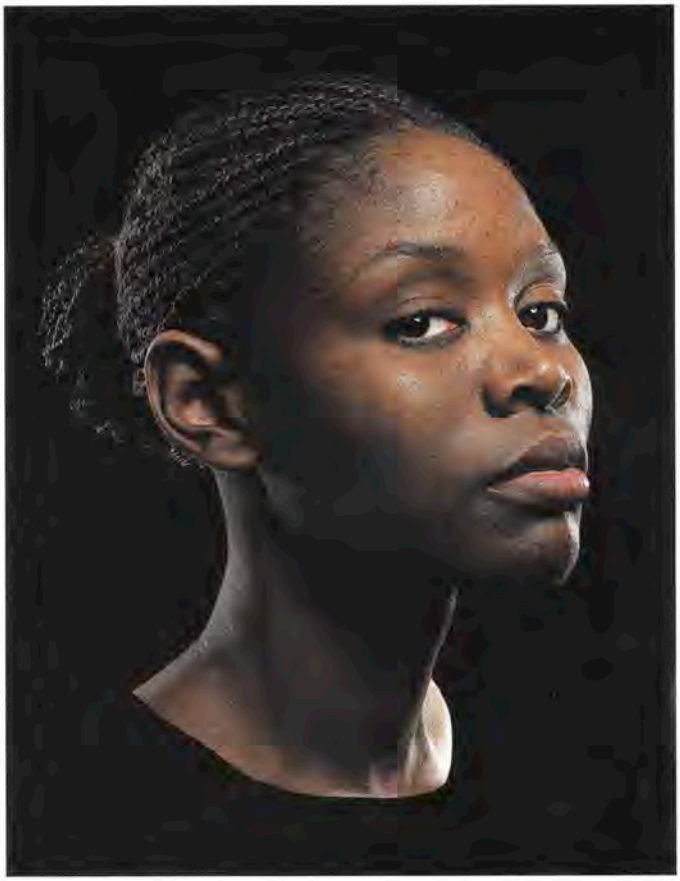
In the late 1980s and 1990s, Perotte developed a successful career as a commercial photographer, working with many of the major ad agencies in the United States and Europe, but he always felt he had unfinished business when it came to his education.

He decided to return to the states and enroll in the International Academy of Design and Technology in Tampa, Florida. While there he earned an associates degree in web design and a Bachelor of Fine Arts in graphic design. Perotte later completed a Master's of Education from American Intercontinental University in Chicago, and he is now a full-time faculty member in IADT's Graphic Design Department.

Perotte is an award-winning photographer, but notes he is particularly interested in portraiture and the human face.

"As a commercial photographer I took a lot of portraits, and I really wanted to push the boundaries—do something completely different that no one else was doing," Perotte recalls.

He decided on large scale portraits with a stunning level of detail. But he was confronted with a problem. The larger the final images, the higher the resolution photograph he would need to take. And to achieve this, he would need to get very close to his subjects and use a lens that would greatly reduce the depth of field.



GLEN PEROTTE

Glen Perotte devised a way to create vivid, nearly-3D photographic portraits such as this one.

> "I really wanted to push the boundaries—do something completely different that no one else was doing."
>
> —Glen Perotte, International Academy of Design and Technology

In other words, the tip of a subject's nose would be in focus, but her cheekbones would be out of focus. And if her cheekbones were in focus, her nose and ears would be out of focus.

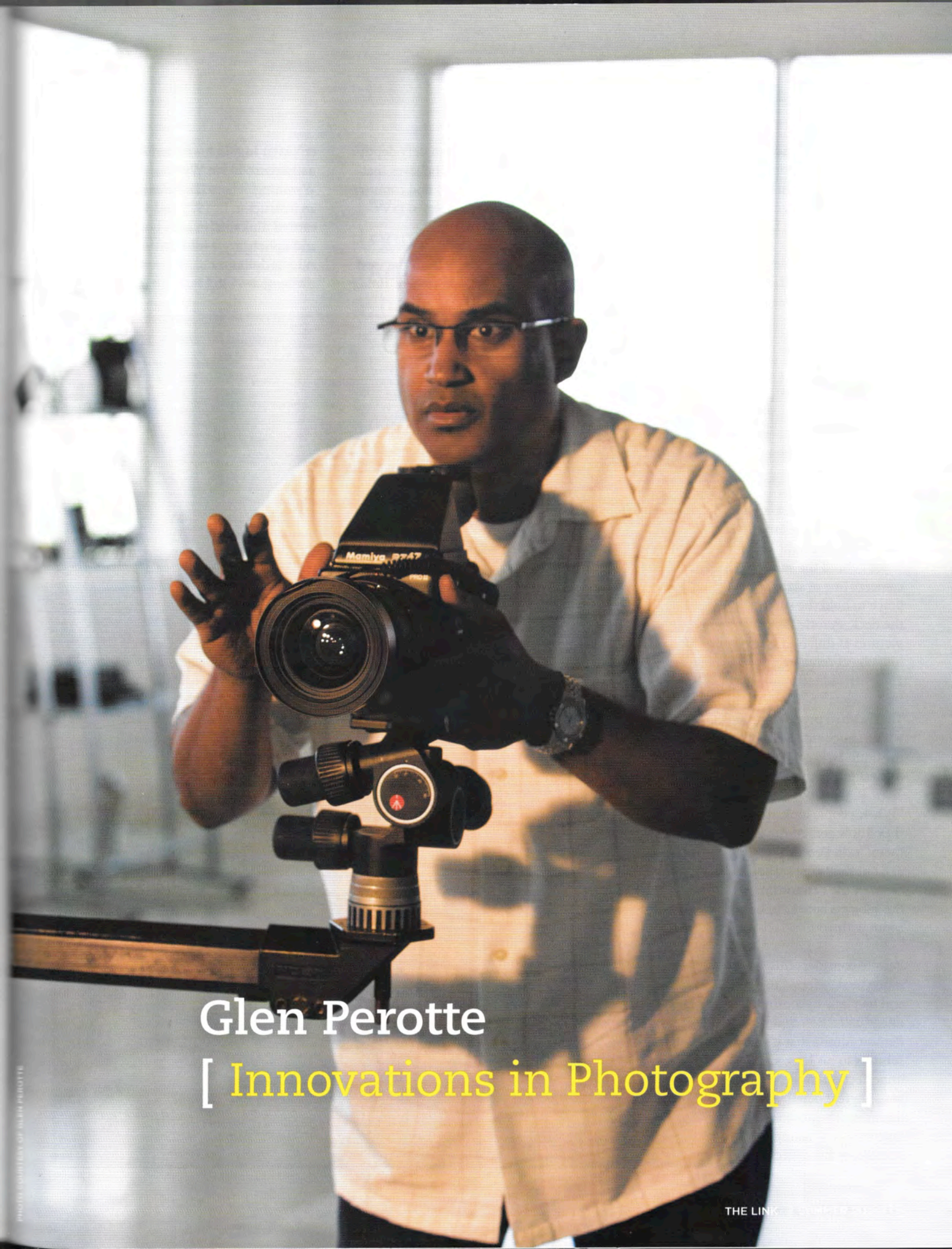
What to do?

Perotte decided he would take multiple pictures of his subjects, changing the focal points each time. Then he would use cutting edge digital technology to stitch the images together. He settled on five basic "zones" of the face: nose, cheekbones, eyes, ears, and the back of the head.

But another problem arose.

It took approximately 20 minutes to capture the images of each subject. If his subjects moved while he was taking the pictures, he would be unable to marry the images together seamlessly.

So, Perotte looked back in order to move forward.



Glen Perotte

[Innovations in Photography]

PHOTO COURTESY OF GLEN PEROTTE

Today photographic exposure times are measured in fractions of a second. But 150 years ago, when photography was first becoming popular, exposure times could be minutes or even hours long. Because of these limitations, early photographs depicted still-lifes, landscapes, or cityscapes, but rarely people, since people were not usually able to hold still for minutes at a time.

Early photographic pioneers, such as Mathew Brady, took to using heavy stands and braces to hold their models still during the long exposure times required for photographs. Perotte realized he could use the same technique for his multiple exposure portraits.

He built a horseshoe-shaped metal brace out of things lying around his studio and attached it to a light stand. He placed the brace behind the subject's chair out of his camera's line of sight and positioned the brace to hold the subject's head just above the neck. Perotte then snapped multiple pictures at different focal points while his subject remained perfectly still. The 150-year-old technique worked!

The finished products are giant portraits with a shocking level of detail that push the boundaries of photo portraiture and fine art photography and fool the eye.

"When people look at these photographs, they know something is different about them," says Perotte. "They think they're 3D, but they aren't. They're 2D, but because of the extraordinary level of detail, the subjects appear to be right there in the room with you."

Perotte considers this "new-old" technique he developed to be his signature, and he plans to continue increasing the image collection that he calls Big Heads. Perotte admits that it's a brave soul who submits to his lens, since even the tiniest imperfection in the subject's skin is laid bare in great detail. As a result, he doubts there's much commercial application for his method of taking portraits. However, he believes his collection shows other photographers how they can defy depth-of-field limitations, and he believes that that aspect has both fine art and commercial photography applications.

Reinventing the Wheel

Another person who hails from the west is Troy Heien, 50, a self-described "tinkerer." After high school, the South Dakota native enrolled at WyoTech in Laramie, Wyoming, where his older brother was an instructor. In 1979 and 1980, Heien earned diplomas in auto body/collision and upholstery while also working at an auto body shop.

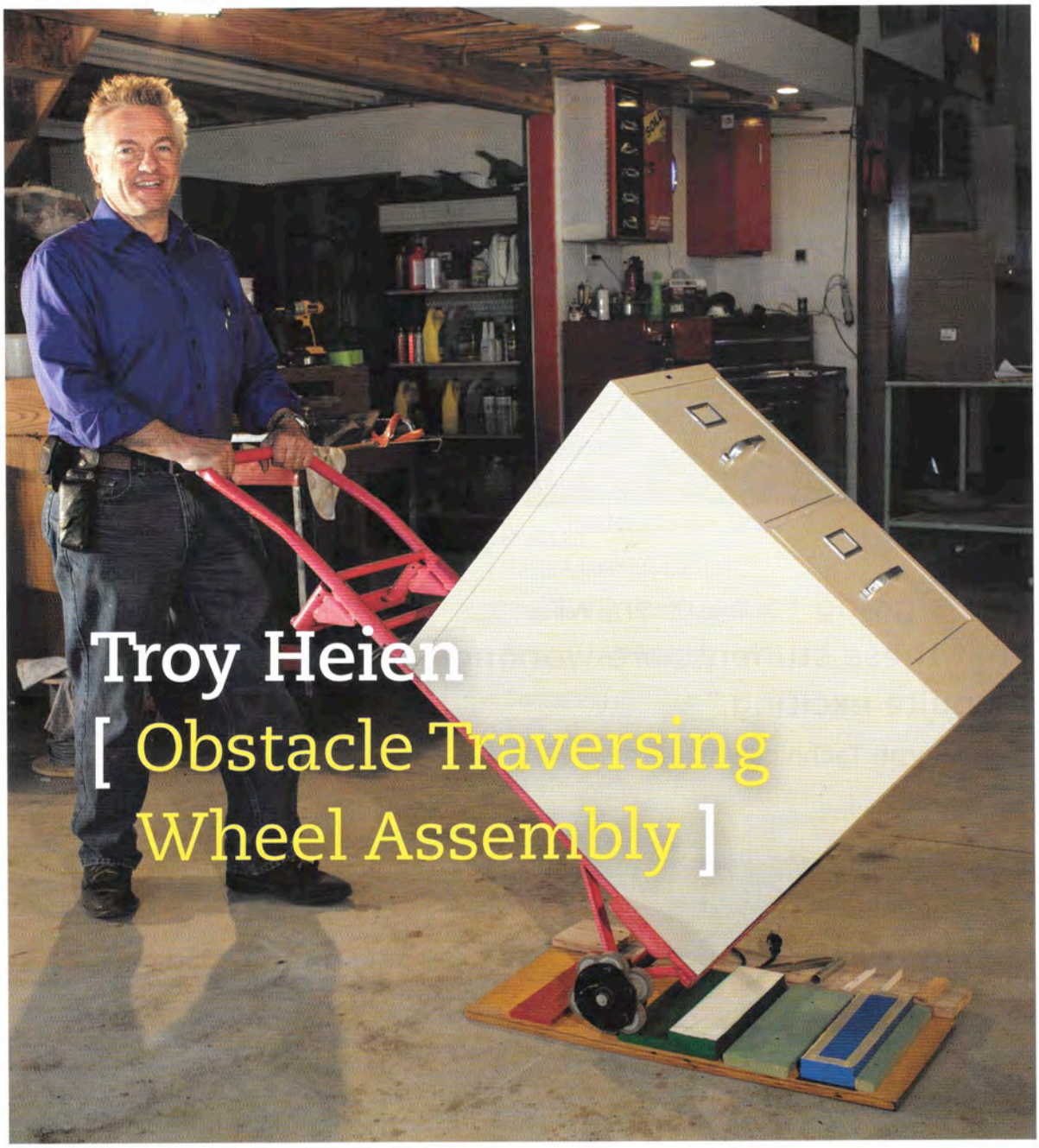
Throughout, Heien says, he loved to toy with the tools and machines he encountered, always convinced he could make them better.

"I was always told to stop trying to reinvent the wheel," Heien recalls. "But I guess that's exactly what I did eventually."

And in 2001—wouldn't you know it—he actually did reinvent the wheel.

"I was always told to stop trying to reinvent the wheel. But I guess that's exactly what I did eventually."

—Troy Heien, a WyoTech graduate



Troy Heien [Obstacle Traversing Wheel Assembly]

JOSHUA HEIEN

Joshua Sager
[Motion Control]

SUSAN ROSA

Joshua Prager in the classroom at Pittsburgh Technical Institute.

"Motion control is going to be everywhere, and that's what these students are working on today—it's quite exciting."

—Joshua Sager, Pittsburgh Technical Institute

Heien was lying on his back on a "creeper"—a board on wheels that auto mechanics use to work on the underside of vehicles. The wheels caught on the cord of his light and Heien got stuck. He tried to force the creeper over the cord, but it wouldn't budge, and he put a nice gash in his hand in the process.

Heien spent the rest of the day thinking about that situation. And then a possible solution came to him.

"I woke up about one in the morning, drew it, and built it within forty-eight hours," Heien says.

The "it" Heien refers to is an Obstacle Traversing Wheel Assembly, or OTWA. Heien now holds a few patents for the

design. At first glance it resembles a type of flower—it's a central wheel with smaller wheels ringing the outside. The entire piece rolls together, like a typical wheel, but when it hits an obstacle, the small wheels enable it to "step" up and over the obstacle.

Heien says the OTWA can be made in a variety of sizes and could be used on creepers, gurneys, wheelchairs, hand trucks, dollies, and even walkers. Heien says that he has an agreement with the nation's largest caster maker, and he hopes to see the wheels in mass production soon.

That is but one of Heien's brainstorms—he's got a workroom full of others, including a black box-like device he says will make driving safer, and about a dozen patents. Heien says he invents things because he wants to make people's lives better and easier; also, he likes a challenge. He believes one of his most recent inventions may even help the planet.

He recalls coming home late one night. As he drew near his home he saw all the lights on, and Heien thought that his wife and five sons were waiting up for him. They were not. They just had left all the lights on in the house.

As he walked around the silent house turning off 48 lights, Heien decided to come up with a solution.

The next day at the hardware store he found light switches on timers. He installed several in his home, but found they all malfunctioned within a month. He then hunted down sturdier, commercial versions, but they were very expensive and required knowledge of electric circuitry—something Heien has, but that he knows most of us do not.

"I knew there had to be a better way to save money, electricity, and not force people to hire an electrician for every light switch in their home," Heien says.

He took a timer, similar to a simple egg timer, connected it to a coil and a plastic "finger" that physically turns off the light. It is affixed atop the light plate so the user never comes close to the electricity. It can be adjusted to stay on for just a few seconds or up to an hour. Heien happily reports that since installing the devices in his house, his electricity bill is a lot lower; he hopes to begin making the product widely available soon.

Heien also spends a lot of time helping other young inventors develop their own projects.

He credits his time at WyoTech with instilling in him great self-confidence that serves him every day.

"Our motto there was, 'You can do anything if you believe in yourself,' he recalls. "We took an old junked car that had been rolled several times and we turned it into a safe, drivable vehicle. If you can do that, you can do anything."

Everybody Runs

Joshua Sager, 32, is a multimedia instructor at Pittsburgh Technical Institute who believes his students can accomplish anything as well. They're working on devising a new way for people to interact with computers.

"The computer mouse has been around for about 30 years, which is a pretty long time as far as technology is concerned," Sager says. "I can't even think of anything I've been using for that long."

Touch screens are an alternative; they are gaining popularity around the globe thanks to smart phones and tablets, but Sager and his students are going even further. They have been working with Wii-style remotes that enable users to wirelessly command a device that reads the position of the remote.

This school year, one of his students brought in a Microsoft Kinect device. It's a webcam-like device that also tracks movement. It's intended to connect to the Microsoft Xbox 360 gaming system to allow users to control games by moving their hands, limbs, or entire bodies.

Sager says his students have bypassed the Xbox and have written simple programs that allow users to control a computer directly from the Kinect. They can turn lights on and off and perform other basic tasks. He has been impressed by their focus and creativity.

"These are web designers, not full time programmers. But the role of web designer has shifted over the years to include elements of programming and graphic design," Sager says. "I'm very proud that these students are able to wear both hats, creating things that look interesting, but also perform."

The technology is used today to create fun interactive games and advertisements in public spaces, but Sager also believes we're not that far off from the high-tech world depicted in the 2002 Steven Spielberg science fiction film "Minority Report."

In that popular film, characters portrayed by Tom Cruise and Colin Farrell perform highly complex commands on super computers simply by waving their hands.

"There's a new industry being created for environmental interaction—events, museums, and even malls," says Sager. "Motion control is going to be everywhere, and that's what these students are working on today—it's quite exciting."

PSCUs are Innovation Laboratories

Clearly, critical thinking, invention, creativity, and technical innovation are alive and well at private sector colleges and universities. The flexibility and adaptability of PSCU programs is key to producing tomorrow's innovators.

"The structure [of PSCUs] fosters the ability of students to focus exactly on what they want to do, and to ensure that every project in their program can be used to further their goals," says Natasha Dalzell-Martinez, a consultant with the University of Phoenix.

PSCUs are also more of a melting pot, bringing together a more diverse group of students with vastly different life experiences that can also help spur innovation.

"Our classrooms bring together students from all walks of life, from many different countries, with different experiences, and different backgrounds," Dalzell-Martinez continues. "I think when you bring together a diverse group of people you get new ideas, new feedback, and sparks of imagination that lead to light bulbs going off."

MICHAEL KLEIN is a freelance writer in Northern Virginia who looks forward to getting rid of his mouse.

For video of Troy Heien's wheel and other web extras, go to apscu.org/thelink.