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Michael Cunningham on
Walt Whitman's glasses

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of the missing Tiffany

SE 0019a

**You've spent your savings.
You're spending your parents' savings.
You never stop working.**

**The passions and privations
of the start-up
entrepreneur**

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You've spent your savings.

You're spending your parents' savings.

You never stop working.

Jake Halpern '97

Photographs by Mark Ostow



**The
passions
and**

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BEFORE HE CAME TO YALE, Arun Gupta '11 was an avid tennis player. Doubles was his game. He played for his high school team, and his partner, Greg Nemeth, was also his best friend. The duo typically practiced early in the morning and, much to their chagrin, found that the quality of their practices was highly erratic. Some mornings they were smashing winners, and other mornings they simply couldn't.



Deputy director **Shana Schneider** '00 and director **Jim Boyle** '94PhD help nurture student inventors and entrepreneurs at the Yale Entrepreneurial Institute.

Preceding pages:
Arun Gupta '11 (left) and **Greg Nemeth** sport early prototype wristbands for their big idea: a REM-sensitive alarm clock.

After a while, Gupta noticed that his personal performance appeared to be directly correlated with how he felt when he rolled out of bed. If he woke up feeling alert, he played well; if he woke up feeling groggy, he usually ended up playing poorly.

One day after practice, Gupta mentioned this pattern to his partner, and Nemeth posited an explanation. Gupta was groggy, said Nemeth, on the days when he failed to wake up during the REM stage of his sleep cycle.

On any given night, we cycle through REM sleep four or five times. In REM sleep, our breathing, heart rate, and even the electrical activity of our brain cells look much as they do when we're awake. For this reason, REM sleep seems to be a natural precursor to waking. In general, if we rise from REM sleep, we feel more alert, but if we're pulled out of a deeper stage of sleep by an alarm, we feel blearier and more listless.

When Nemeth explained all of this to his doubles partner, Gupta asked half-jokingly why his alarm

clock wasn't smart enough to wake him up at the right moment in his sleep cycle. The more he thought about the concept, the more he liked it: a device that would allow him to wake up on the right side of bed for the rest of his life! He briefly obsessed over the ideal of a REM-sensitive alarm clock.

But the idea remained a pipe dream. High school ended; Gupta went on to Yale and Nemeth to Boston College; and Gupta forgot about his alarm clock until his sophomore year at Yale. It was then that he discovered the newly created Yale Entrepreneurial Institute (YEI)—an incubator for aspiring inventors and entrepreneurs. And suddenly Gupta was obsessing over alarm clocks once again.

THE ORIGINS OF YEI can be traced to an article that ran in the *Wall Street Journal* in the fall of 2006. The article highlighted a recent graduate who had concluded that New Haven simply didn't have the resources to support young entrepreneurs. Jon Soderstrom—who, as managing director of Yale's Office of Cooperative Research, helps academics build viable products and companies based on their research—was dismayed by the article. He shared it with several colleagues, including Rich Madonna and Jim Boyle '94PhD, and the two began looking for a solution. They consulted with Sean Glass '03, Mark Volchek '00, and Miles Lasater '01, who, in 2001, had founded a student organization called the Yale Entrepreneurial Society (YES), not to mention Higher One, a successful New Haven-based business. (For more on YES, see the December 2002 issue on our website at yalealumnimagazine.com/archive/.)

Ultimately, Boyle and his colleagues decided that what Yale needed was a networking hub—a place where entrepreneurs could meet, find mentors, get advice, and connect with venture capitalists. The project opened with a ten-week summertime crash course in starting new ventures. Yale administrators liked the idea, and in 2008 they made YEI an office of the university and appointed Boyle—himself an entrepreneur, who had started his own first venture while a graduate student at Yale—as its director. Fellows typically receive \$5,000 stipends and attend seminars on, for example, writing a business plan and creating a proof of concept for a product or service. Students also get a bit of polish by hobnob-

JAKE HALPERN '97 is the coauthor of *Dormia*, a fantasy for young adults about a boy who accomplishes extraordinary things in his sleep.

SE 0019a-5



Company: YouRenew

Principals: Bob Casey, Rich Littlehale '11

What they do: buy people's old cell phones and other electronic devices for resale or recycling.

Capital secured to date: \$950,000.

Why: the pursuit of two kinds of green. "Our mission is to make it easier to renew your old electronic devices than throw them in the trash," their website says.

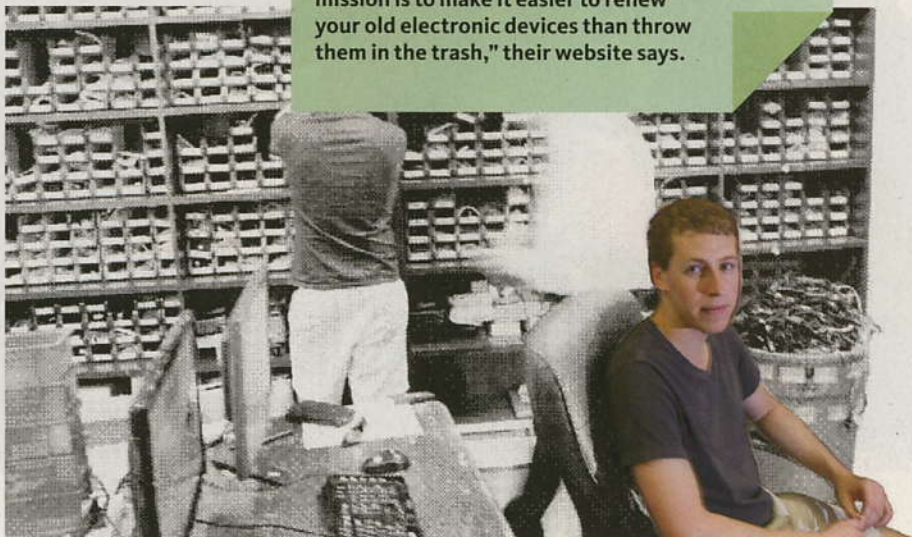
bing with business executives. "We will bring in a senior guy at eBay and he will give an hour lecture," explains Boyle. "And we strongly encourage our fellows to seize the opportunity and start building a relationship with him then and there."

For the most advanced and promising ventures, YEI offers subsidized office space at its own headquarters, above Ashley's ice cream parlor on York Street. When I first visited the place, in February of 2009, there were several phone discussions taking place on the narrow, dimly lit stairwell leading up to the institute. Undergrads, dressed in jeans and sweatshirts, were talking on their cell phones: "Our CFO won't be back until Sunday, so let's schedule the meeting then," one was saying. "Yes, sounds good!" another exclaimed. "We'll be meeting with the investors by then."

Upstairs, I bumped into Jonathan Hartman '09, who was developing a robotic forklift. Despite the current state of the economy, Hartman was gung ho: "I have no mortgage, no wife, and no kids—you know, why not!" (Hartman has since mothballed the project and is now at Sikorsky Aircraft.)

"We've given every dime we had in savings, every dime we made from summer jobs, from Yale on campus jobs—anything we had, we've given to this."

I stopped in at the office of YouRenew, a Web-based company that will buy your old cell phone and then resell it or recycle it. Rich Littlehale '11, the company's cofounder, had just dropped out of Yale temporarily and said he was putting in 90 to 100 hours a week. His co-founder, Bob Casey, told me his parents actually want him to party more. One night when he called, they said, "You're calling home and it's eleven o'clock and you're still in the office. Why aren't you out? It's Friday night!"



Casey and Littlehale had seen some financial ups and downs. Until just a few days earlier, they had been completely out of money. "We've given every dime we had in savings, every dime we made from summer jobs, from Yale on campus jobs—anything we had, we've given to this," Casey said. They had been two or three months behind on the minimal rent for their YEI office. Then, finally, some investors committed. "We went from being tens of thousands of dollars in debt to being ahead of the curve," said Casey giddily. (That summer, they would receive another infusion—\$950,000 in all.)

Bob Casey of cell-phone recycling company YouRenew in the company's YEI office space.

ARUN GUPTA AND GREG NEMETH don't have an office at YEI, but they like to hang out there, and I met with them in the institute's cramped conference room. Gupta is a slender Indian American with kind eyes and jet-black hair. He speaks rapidly, almost in fast-forward, and punctuates his speech with nervous laughter. Nemeth is sturdier in build, and his demeanor is calmer. He has the soothing voice of a late-night talk-show therapist. The two of them complement one another nicely. "If I had a dollar for every time somebody's told us we're like a married



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Company: Paper G

Principals: Victor Wong '09, Ka Mo Lau '09, Roger Lee, Victor Cheng '08, Tyler Bosmeny.

What they do: produce and sell a virtual bulletin board for advertising on the websites of local publications.

Capital secured to date: \$1.1 million.

Why: local newspapers are looking for ways to make money on the web—or anywhere. "When you're looking for new opportunities, you want to find customers in pain," Wong told the *Hartford Courant*. "They're willing to pay for a solution. That's the perfect time to jump in."

Paper G staff, left to right: Roger Lee, Victor Cheng '08, Tyler Bosmeny, Ka Mo Lau '09, Victor Wong '09.

couple, we wouldn't even need this venture," says Nemeth.

Gupta and Nemeth, too, had both just dropped out of college and were living off savings and the largesse of their families. They had spent the previous summer as YEI fellows, preparing to become full-time entrepreneurs and launch their new company, WakeMate. One step was to research the competition. There are other sleep-cycle alarm clocks on the market, but according to Gupta and Nemeth, these products have serious drawbacks: the cheaper models (starting at \$180) don't work very well, and the higher-quality ones (starting at \$300) are either too expensive or too cumbersome.

The two also cold-called sleep experts around the country. Eventually, they contacted Robert Stickgold, at Harvard Medical School, who has a novel

theory about the sleep cycle. Stickgold believes that during the night, most commonly when we go into and out of REM sleep, we wake up, roll over, perhaps grunt, and then go back to sleep. He admits he has yet to gather the data that would confirm his theory, but he has observed the phenomenon countless times over his decades of research.

Gupta and Nemeth seized on the idea, reasoning that—if Stickgold is right—there are two or three dozen ideal moments within REM sleep when people can wake up and feel their best. The trick was to build an alarm that could identify these peaks. For his part, Stickgold agreed to serve as an adviser to WakeMate. Over the years he has been approached by many entrepreneurs with similar ideas, but Gupta and Nemeth impressed him. "It became clear to me that they had done more of their homework than most people," he says, "And they were in a program [the YEI fellowship] that would help them make this happen."

After many consultations with Stickgold, Gupta and Nemeth designed a wristband with a built-in accelerometer, which they programmed to identify certain distinct body movements that correlate with the peak moments. If a peak took place during the wearer's chosen wake-up window, say between 7:40



Better Mousetraps

A few of the companies that are supported by YEI

and 8:00 a.m., a signal would go out via Bluetooth to the wearer's cellphone, which would wake him or her at the ideal moment for springing out of bed.

It wasn't easy for Gupta and Nemeth to win over their first and most crucial backers: their parents. As they tell it, they explained to their parents with great passion that they wanted to forge their own path, not to follow the slow, safe, and more boring route of climbing up the corporate ladder.

"Everybody wants to get rich," Gupta told me, "but most people don't get rich until they're old, and then they don't really spend their money. It's like a weird thing. So it almost makes sense to take out massive amounts of debt when you're young and just pay it when you're older."

"And in the meantime," I hazarded, "you can enjoy the benefits of..."

"Of having a lot of money!" finished Gupta exuberantly. "Because I want to buy a Porsche, but I'm not going to drive my Porsche around when I'm 70."

GUPTA AND NEMETH'S COMPANY is one of some 40 student ventures YEI is currently nurturing, advising, or subsidizing in some capacity. YEI is also still working with many teams whose founders have graduated. The variety of fledgling companies affiliated with YEI is wide. They include: Barefoot Concepts (a designer athletic shoe company), Grilled Cheese to Go (a fast-food franchise), Black Oak Capital Partners (a timber and agricultural investment company), Green Bride Guide Online (an online marketplace for eco-conscious brides), and jetEye Technologies (a company helping to build more-efficient commercial and military aircraft). Twenty of the forty companies have completed YEI's summer fellowship.

Yale isn't the first or the only university with a program dedicated to entrepreneurship. Both Stanford and MIT have had such programs for years. Jim Boyle is quick to point out, however, that Yale's program is unique in that it is run out of the university's technology transfer office (the Office of Cooperative Research). Its overriding goal is to find the most promising student-founded companies and get them off the ground, says Boyle. YEI wasn't charged with creating classes on entrepreneurship or helping

Company: Grilled Cheese to Go

Principal: Michael Inwald '10MBA

What they do: quick-service franchise offering variations on the classic sandwich.

Capital secured to date: undisclosed.

Why: "I think consumers today appreciate simplicity," Inwald told the *New Haven Register* when his pilot store opened in a Connecticut mall in November. "There hasn't been a franchise that specializes in grilled cheese."

Company: Glaumetrix

Principals: Paul DiCapua '09MD, '09MBA; Vicente Diaz '05MD, '05MBA; Amir Cohen

What they do: develop a device for continuous measurement of intraocular pressure in patients with glaucoma.

Capital secured to date: currently raising.

Why: intraocular pressure is the only modifiable risk factor in the treatment of glaucoma. A painless sensor can alert patients to dangerous elevations in real time and could give doctors more information to guide care.

Company: Green Bride Guide

Principal: Kate Harrison '09MEM

What they do: online marketplace for eco-friendly wedding ideas, products, and services.

Capital secured to date: \$250,000.

Why: "Weddings are a \$70 billion industry, and I want to make it as easy as possible for couples to support the local green economy with their choices," Harrison explains on the website.

all students. "This was to be a mercenary approach aimed at the people who were the high fliers from any school at Yale," says Boyle.

Thus far, 16 of YEI's current companies have received significant funding, either from outside investors or because they teamed up with corporate partners. Thirteen of these companies have raised more than \$100,000 each in outside funding. As a group, YEI companies have raised more than \$18 million.

"Innovation can be a messy process, and not everything that people try will work out."

One of YEI's more notable success stories involves a School of Management graduate, Leslee Parker '09MBA. In 2008, YEI and the Office of Cooperative Research helped Parker create and market a business plan for commercializing a revolutionary water purification process developed by chemical engineering grad student Robert McGinnis '08MPhil and his adviser, Menachem Elimelech. The resulting start-up, OASYS Water, has received more than \$10 million in financing.

There have been plenty of failures, of course. YEI says that, in the three years of its existence, about 20 companies have "gone dormant." "Innovation can be a messy process, and not everything that people try will work out," says Shana Schneider '00, deputy director of the institute. "This is simply part of the start-up process."

A MONTH OR SO AFTER first meeting them, I joined Gupta and Nemeth to watch them make a pitch to some prospective investors. They had an 8:15 a.m. meeting with a venture capital firm in Hartford called Connecticut Innovations. It was literally a wild ride, with Gupta driving at about 85 miles per hour, swerving in and out of the lanes, fretting because they were going to be very late. Ironically enough, the alarm on his cell phone had failed to go off.

As we raced down the Merritt Parkway, Gupta and Nemeth told me that they were now collaborating with an industrial design firm that was creating a prototype of their wristband. The initial drawings looked good. Right now, however, what they needed was money.

Nemeth pointed at the car's clock. It was 8:15 and we were still a good distance from Hartford. "This isn't good," muttered Gupta.

"We broke the cardinal rule," said Nemeth with a shake of his head.

"Never, ever, ever, ever be late," finished Gupta.

No one spoke for a moment.

"Should we tell them we got lost?" asked Gupta.

"No—that's no good," said Nemeth.

Fifteen minutes later we arrived at the office park, and Gupta and Nemeth leapt out of the car. They were unshaven, bleary-eyed, and looking scruffy in wrinkled clothes. We sprinted for the office.

"How about car trouble?" asked Gupta as we ran.

"That's weak," panted Nemeth.

"I'm not worried," said Gupta.

"I'm not worried either," said Nemeth.

We dashed onward. Nemeth's pant leg was tucked into his sock, but he didn't seem to notice.

When we finally arrived at Connecticut Innovations, Gupta and Nemeth met with Charles Moret, managing director of business development. We all sat down in a conference room, and Gupta and Nemeth made a quick, polished presentation on their product. "For just 30 dollars, which is the cost of the wristband and software, you will have no more grogginess or jet lag," says Gupta.

Moret looked unconvinced. "What's your arrangement with Dr. Stickgold?" he asked.

Gupta told him Stickgold was one of their company's founders.

"And what is your measuring device?" asked Moret.

"We have a wristband, with an accelerometer, and it communicates with the software, which has a motion-based algorithm," explained Gupta.

Moret shrugged, unimpressed, and asked whether they had a patent yet.

Gupta said WakeMate's legal team was working on a patent. The work, he added, was being handled pro bono by law students at the University of Connecticut.

"Wow," said Moret, impressed for what seems like the first time. "You must have really wine and dined them."

But not much later, he called the meeting to an end and thanked Gupta and Nemeth for their time.

"They're not really interested," Gupta lamented as we walked back to his car.

"They were interested in the concept, but it needs to be more than a concept," added Nemeth.

"We've considered doing a scientific study," Gupta



Company: WakeMate

Principals: Arun Gupta '11, Greg Nemeth

What they do: produce an alarm clock designed to wake you at the optimum time in your REM sleep cycle.

Capital secured to date: currently raising.

Why: "Traditional alarm clocks wake you at a random point in your sleep cycle, leaving you feeling groggy," the company's website explains. "The WakeMate will analyze your sleep to find the optimal time for you to wake up. You will feel refreshed and energized every time you wake, even from naps!"



told me, "but we feel it is better to get the product out there and let it speak for itself." Nemeth was silent. "We're not that disappointed," concluded Gupta. "We're not that disappointed at all."

"I would like things to have gone better," said Nemeth.

"It didn't go so badly," insisted Gupta.

"If it could go wrong today, it did," said Nemeth, smiling.

They both laughed.

IN MAY, GUPTA AND NEMETH competed in an annual business plan competition sponsored by the Yale Entrepreneurial Society. Much to their own surprise, Gupta and Nemeth won the \$50,000 grand prize. I talked to Gupta not long afterward, and he told me his parents were thrilled. "They were ecstatic. They went crazy. They were like, 'Oh, my god—\$50,000.' They saw that someone else believed in us!"

But there was a catch. The \$50,000 is provided by Launch Capital, a venture capital firm that wanted a significant stake in WakeMate. Gupta and Nemeth did a careful reading of the terms, consulted with their lawyers, and ultimately came to the conclusion that, painful as it was, they couldn't take the money. They felt they would be giving up too much equity and too much control. It took Gupta days before he could bring himself to tell his parents.

Then WakeMate's fortunes started to pick up. That summer, the pair were out in California, participating in a selective summer program for entrepreneurs known as Y-Combinator. The program provided a \$20,000 stipend, which Gupta and Nemeth used to finance production of their design prototype. Then they got more funding, including a \$7,500 grant from Connecticut Innovations, Moret's firm. By late November, they had officially launched and had started taking pre-orders on their website for January delivery (\$5 off from the total price of \$49.99). And *TechCrunch*, a blog that reviews new Internet products, gave them a favorable write-up.

The last time I talked with Gupta and Nemeth was in December. I called Nemeth's cell phone, and when I reached him it sounded as if I had woken him up. It was 9:30 in the morning in New Haven, but it turned out that Nemeth and Gupta were still in California. (They're now based in Silicon Valley, sharing a studio apartment to save money.) "It's early here," Nemeth said with a yawn. His WakeMate had been set to go off imminently—between 6:40 and 7:00. "If you'd called just a few minutes from now," he told me, "I'd be far more alert." ☑

Top: **Arun Gupta '11** (left) and **Greg Nemeth**.

Above: a prototype of the **WakeMate** wristband.