CLEARLY AMAZING

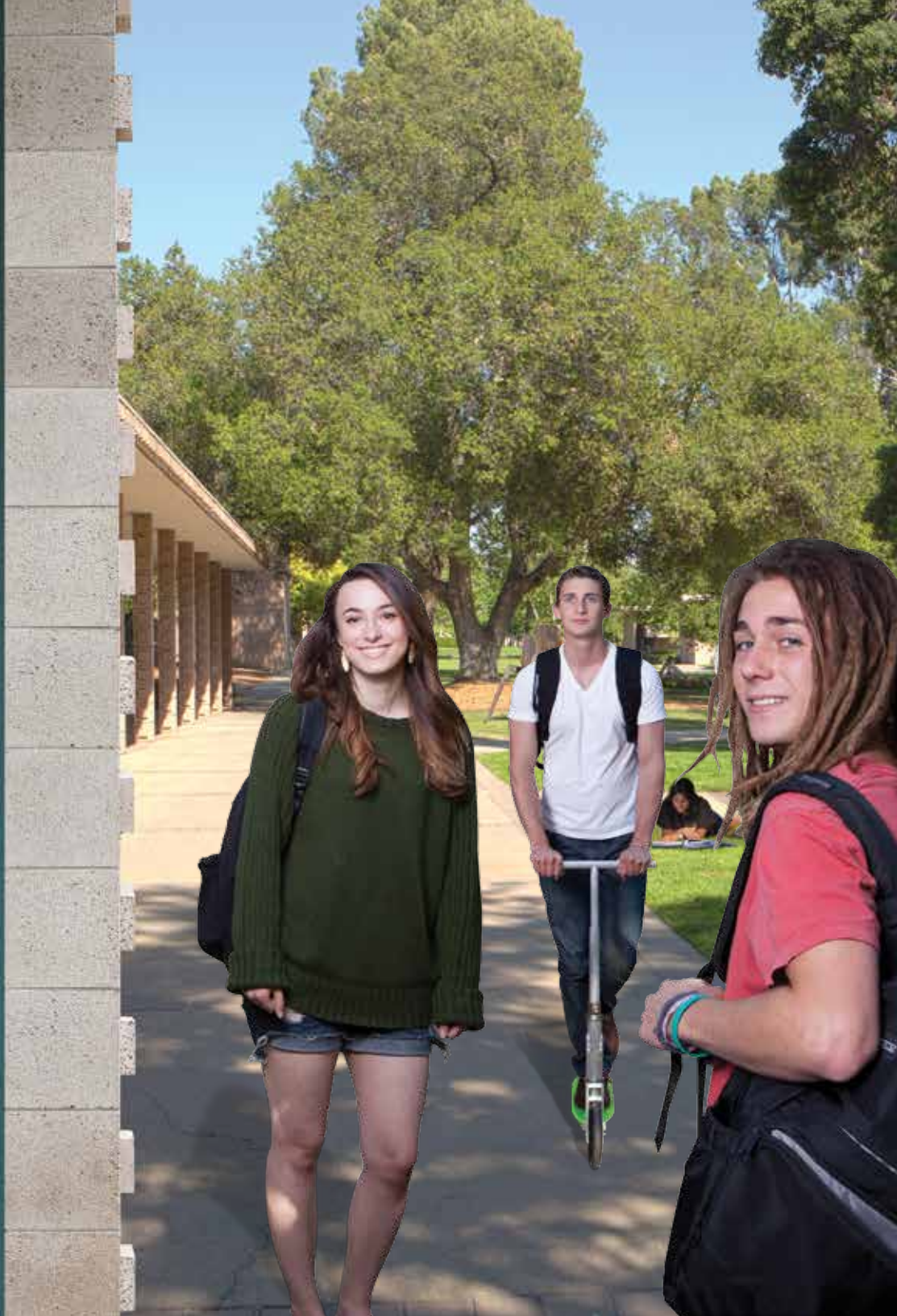
HARVEY MUDD
COLLEGE

TABLE OF CONTENTS

You know that feeling...when you’re deep into a problem, and for a moment the world drops away, and you’re alone with your work, and in the space of what seems like a breath, the problem breaks, you see what you couldn’t have seen before, and then the moment passes, and you’re back in the world; you feel like a diver returning to the water’s surface, and you know that you’ve done something new, built the unbuilt, imagined the impossible, and everything around you feels fresh and connected, a beautiful abstraction and a concrete truth.

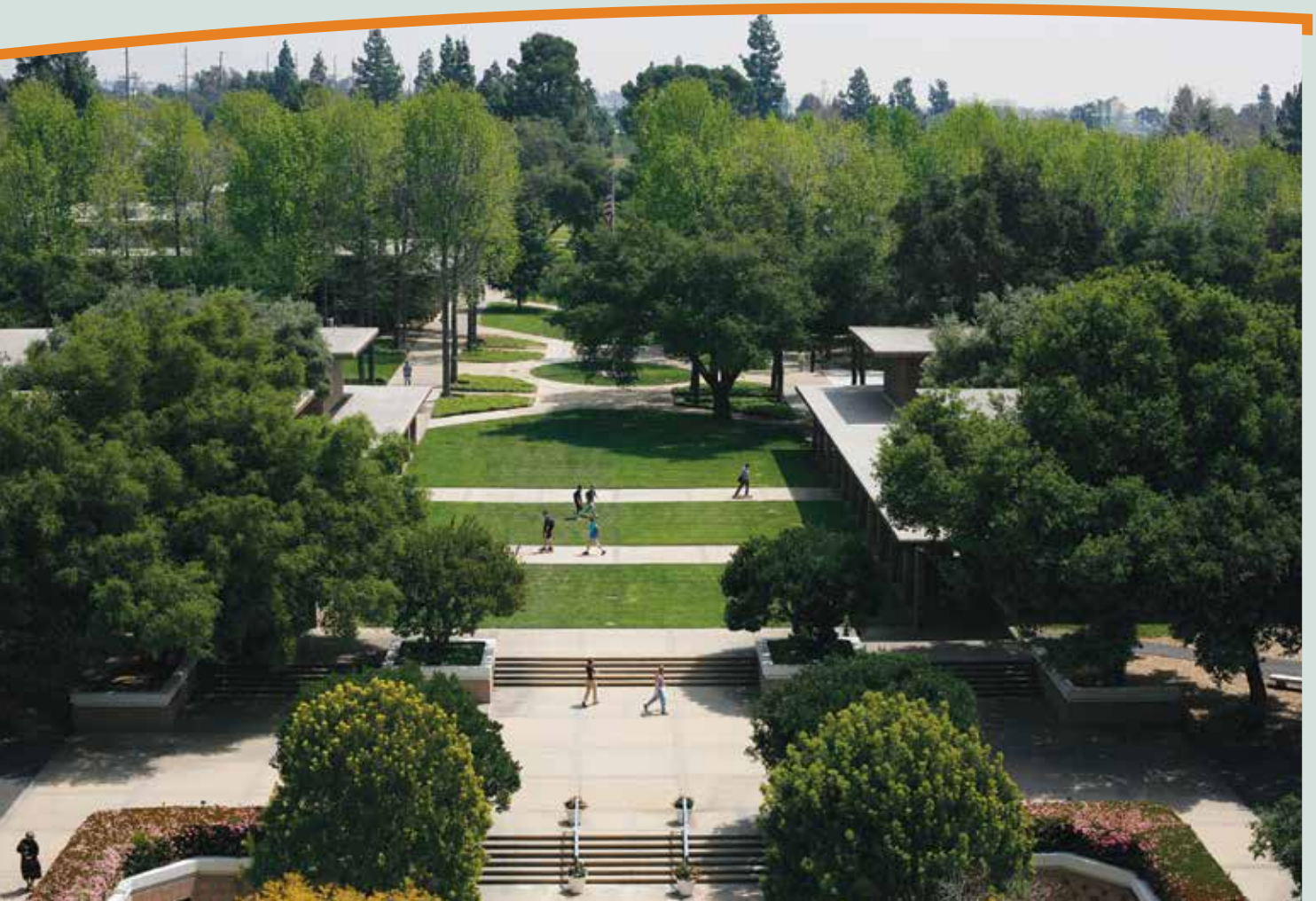
We are that feeling. We’re the only college brave enough and crazy enough to nurture the next generation of fluid, fearless, forward-looking scientists.

We are Harvey Mudd College.



THE PROOF

TEN REASONS *any reasonable person would be logically compelled* TO LOVE US



[1] YOU'RE THE CENTER OF OUR UNIVERSE. All of our 780 students are undergraduates. The student-to-faculty ratio is 9 to 1. You are the reason we're here.

[2] WE GET OUR HANDS DIRTY. We spend more than $3 million every year on undergraduate research. Our curriculum is riddled with hands-on experience. A high percentage of our students participate in summer research with faculty. Major corporations pay more than $45,000 to have teams of our students solve their problems as part of our renowned *Clinic Program.* You'll do research. And it will matter.

[3] OUR PROFESSORS ARE APPROACHABLE. Yes, they've all got the highest degree in their field, and yes, they expect you to join them in conducting world-class research. But they're also real people. They run marathons, they sing in choirs, they play in jazz bands, they compete in "Dancing with the Claremont Stars."

[4] **OUR CURRICULUM WILL CHANGE YOU (FOR THE BETTER);** We have a Core curriculum that provides, shall we say, an intensive introduction to the major fields of study. Both challenging and invigorating, it'll make you a strong, well-rounded student.

[5] **WE HAVE A SOFTER SIDE.** We're a liberal arts college interested in the human experience. At least 25 percent of your coursework will be in the humanities, social sciences and the arts. You'll be an enlightened human being—and an exceptional scientist. *One follows naturally from the other.*

[6] **WE'RE NOT ALONE.** We're a member of The Claremont Colleges, one of the nation's oldest college consortia. You'll have access to more than 2,500 courses, more than 300 clubs and organizations, two million volumes in the Colleges' library and dozens of majors.

[7] **WE'RE SMART.** *But modest.* By any numerical standard, we rock. You'll be surrounded by people who represent the future of your field.

[8] **WE'RE A COMMUNITY.** We live by an honor code, we help each other, we throw legendary parties. We go trayless in the dining hall and monitor our dorms' energy usage, and we play complicated *and reversible* pranks. Students collaborate, not compete. You'll belong here.

[9] **WE'RE GEEKS.** We're geeks—if by "geek" you mean "a multidimensional, polyvalent, seriously interesting person who happens to really, really love math, science, engineering, humanities, social sciences or the arts." We have lives and interests and tastes and something approaching style. Yes, we're all that.

[10] **WE SUCCEED BEYOND MUDD.** Our graduates have serious options. When you graduate, you'll be looking at jobs with excellent salaries. You'll be looking at funding packages at top Ph.D. programs. You'll have opportunities to do advanced work at major corporations and research labs. Or you may do something else completely unexpected and essential. You'll be the future of the field.

journey to CLOUD 9

NADIA ABUELEZAM '09

PH.D. STUDENT
EPIDEMIOLOGY

HARVARD UNIVERSITY

HMC ALUMNI PROFILE **MATHEMATICAL BIOLOGY GRADUATE, HARVEY MUDD COLLEGE**

This is not a story about meteorology, although it could be, since it contains pretty much everything else in the known universe, like poverty and mathematical modeling and infectious disease and thoughtful professors and a Mudder named Nadia Abuelezam, whom you really should meet.

HOW SHE SPENT HER SUMMER VACATION

"I spent eight weeks in Uganda, working with an AIDS support organization. I did mathematical modeling and found a way to distribute medication in rural and urban areas. I extended that work into my senior thesis."

WHAT "MATHEMATICAL MODELING" AND "HIV/AIDS" ARE DOING IN THE SAME SENTENCE

"A model gives you a representation of what's happening in real life—and then it lets you experiment with that model. The organization I worked with could see their current distribution patterns—and then experiment with ways to make them more efficient and effective."

WHY THIS WORK IS IMPORTANT

"Thirty-three million people around the world are infected with this disease. A majority of those people are living in poverty. We don't have a cure. It sounds cheesy, but it's my way to make a difference in other people's lives."

WHEN PEOPLE TALK, PEOPLE ENVISION

"I get excited by work that involves two fields I really love: math and biology. It turns out that all the most important work is interdisciplinary. I didn't really understand that until I came to Mudd. You see it in the Core, where professors make the courses speak to each other. I saw it in my Clinic project, which utilized math and chemistry and biology and computer science. When you've got complex problems, the solutions are going to involve different disciplines."

FROM VISION TO ACTION

"I'd been talking to professors about infectious disease—in every class project, I'd try to incorporate it. Then I got an email from a professor who was starting the class HIV/AIDS, Science and Service. As part of the class, he put me in touch with people he knew in Uganda. I was on cloud nine. That's how it works here. What do you want to do? What do you care about? Let's make it happen."

HOLD ON to your socks

RAN LIBESKIND-HADAS

R. MICHAEL SHANAHAN PROFESSOR OF COMPUTER SCIENCE AND CHAIR, COMPUTER SCIENCE DEPARTMENT

HARVEY MUDD COLLEGE

HMC FACULTY PROFILE

This is Ran "Ron" Libeskind-Hadas. He doesn't write code, work in a windowless office or survive only on energy drinks and junk food. And yet he's a computer scientist. In fact, he's on a mission to change your ideas about computers, programming and computer science itself.

WHAT YOU'LL DO OUTSIDE THE CLASSROOM

"Lab work is hugely important. We have an enormous summer research presence. More than 150 students spend the summer doing paid research with faculty. That ratio is astounding."

WHAT IT'S LIKE TO DO RESEARCH WITH HIM

"My work is extremely theoretical—I'm designing and analyzing the most efficient way to solve optical networking problems—but my research is hands-on. When I work with students on a summer research project, we'll read papers together, meet several times a day, talk about the problems we're working on—and then we'll go to the white board or sit with a pencil and paper. This is sophisticated stuff, but the students are extremely capable."

GET THE BIG PICTURE, SURF THE WAVE

"This is a dynamic field; the skill sets we're using now won't be the skill sets we'll use 10 years from now. So we're trying to expose students to the big picture. We want to convey major intellectual ideas and problem-solving strategies; we want our students to be better thinkers and communicators. If you've got the big principles, then you can surf the wave."

WHAT THIS HAS TO DO WITH SOCKS

"In my computational complexity theory course, I asked students to get two one-inch strips of scotch tape, but gave no further explanation. After stating a surprising theorem, I said, 'The last piece of this lovely proof is so amazing it's going to knock your socks off—so, take your two strips, and tape each sock to your leg.' Hence, the knock-your-socks-off theorem."

we all LEARN in a yellow submarine

CLINIC PROJECT

NOVEL OIL RECOVERY SENSOR SYSTEMS

HMC PROFILE **CLIENT: SEAmagine HYDROSPACE CORPORATION, SAN DIEGO, CALIF.**

What if you took a yearlong course that allowed you to conduct advanced research for an actual client, involved professional-grade experience in teamwork and communication and often resulted in patents or jobs? Well, then you'd be in our Clinic Program. Here's what it's like to work on a real-life problem that needs a solution—now.

AN URGENT NEED

The six-member SEAmagine Clinic team (juniors and seniors) addressed a serious problem occurring in the Gulf of Mexico: underwater oil spills. Most oil recovery methods have been developed for surface oil. The current method to recover underwater oil employs divers, who manually scour the polluted area in pitch blackness, sucking up water and oil with vacuum hoses attached to pumps on the surface. This approach has serious limitations: divers have a maximum depth, can stay underwater only for a limited time; and become covered in oil themselves.

A CAPABLE TEAM

SEAmagine requested a vacuum system that could be operated from inside a submarine, allowing for deeper and longer clean-up efforts. The HMC Clinic team had to devise a feedback system that could recognize when the vacuum hose was taking in oil as opposed to water.

A CLEVER DESIGN

Their feedback system had three sensors: a hydrophone, which provides an audio signal from the vacuum nozzle head; an ultrasonic sensor, which measures travel time of an ultrasonic pulse to detect non-water material; and a pressure/temperature sensor, which takes differential pressure readings to indicate changes in flow. Along the way, the students acquired skills in mechanical design, control systems and fluid mechanics—not to mention teamwork.

A POSSIBLE SOLUTION

A robotic arm is attached to the submarine, from which an operator can control the vacuum hose, which is attached to a surface pump. With the data from the team's feedback system, the operator can determine when oil is being recovered and can then effectively recover oil for longer periods of time and at deeper levels than human divers.


THE
NORF
DORM
SEAmobile

PROVING ground

SAM GORDON '09

ASSOCIATE ELECTRONICS ENGINEER

NASA'S JET PROPULSION LABORATORY

HMC ALUMNI PROFILE **ENGINEERING GRADUATE, HARVEY MUDD COLLEGE**

Sam Gordon will blast away any assumptions you may have about NASA engineers. When not helping spacecraft to land on Mars, he enjoys rock climbing and surfing in the Southern California sunshine. He pursued these interests while at Mudd, along with leadership opportunities (he was West Dorm president his junior year and served on the Dormitory Affairs Committee). He earned his bachelor's degree in engineering from Mudd and landed a job with NASA's Jet Propulsion Laboratory right out of college.

HOW MUDD LAUNCHED MY CAREER

"The skills I picked up at Harvey Mudd are what made me an engineer. I couldn't do my job at JPL without them. The engineering Core and the upper-division technical electives are project-based and designed to help you go into the real world, into a complex job situation, and be ready to succeed. It wasn't the specifics, such as which coding languages I learned, but the general attitude of how to be an engineer and solve problems. I learned how to think critically about problems, how to address them and triage them and then take problem-solving steps that can be applied to any situation."

FROM MUDD TO MARS AND MORE

"My first job right after graduation was the Mars Science Laboratory (MSL) Curiosity. I was a systems engineer and an integration and test engineer for the terminal descent sensor, which is the landing radar. It told the spacecraft how far away it was from the ground and how fast it was moving during entry, descent and landing into the Martian atmosphere. On landing day, Odyssey had a bent-pipe radio link with the MSL spacecraft while the Mars Reconnaissance Orbiter (MRO) was just open-loop recording all of its data. Then, about four hours after landing, MRO transmitted all that data back to Earth, and it was my job to post-process that data and provide it to scientists and engineers for analysis. I was the lead hardware engineer on the Universal Space Transponder, the next-generation deep space radio, and I'm working on the Deep Space Atomic Clock and the first CubeSat to go into deep space."

LIFE-SUPPORT SYSTEM

"The community is the only thing that could possibly get you through Harvey Mudd, because it's designed to be such a challenging school. I was 3,000 miles away from my family, so I came to rely on everyone: my fellow students, professors and the staff. They became my surrogate family and helped me through to graduation. Harvey Mudd was the hardest thing I've done, but knowing I've accomplished so much is truly empowering."

sudden IMPACT

Feel like solving blindness? Care to work as an equal partner with a pathbreaking professor, unobstructed by graduate students? Interested in working at the intersection of a bunch of different fields—in other words, at the cutting edge of science and engineering? Liz Orwin—once a Mudder, now a professor—has a project for you.

LIZ ORWIN '95

PROFESSOR OF ENGINEERING AND ASSOCIATE DEAN FOR RESEARCH AND EXPERIENTIAL LEARNING

HARVEY MUDD COLLEGE

HMC FACULTY PROFILE **ENGINEERING GRADUATE, HARVEY MUDD COLLEGE**

WHAT HAPPENS IN HER LAB

"We're trying to tissue engineer a cornea. The bigger picture is, we're trying to create tissue that could replace corneal tissue that causes blindness. So we'd be solving part of the problem of blindness. We'd also create a corneal model that would allow us to study the effects of new drugs and laser treatments, so we wouldn't have to use animals."

NO LAB EXPERIENCE? PERFECT!

"I don't use grades as a basis for choosing students because there's absolutely zero correlation between your grades and your performance in a lab. And, I don't look for experience; in fact, I like to recruit students early and have them stay, so by the time they're seniors they can educate the newest recruits. What I really look for is enthusiasm for the field—students who want to make a contribution, have an impact."

WHY YOU WOULDN'T HAVE TO BE AN ENGINEER OR A BIOLOGIST

"It's an interdisciplinary project. So I put together teams of students—called Engman Fellows—from different disciplines. We've got one integrated problem that we can look at from all these different angles. And the students teach each other; some are better in the lab, some are better in the shop, some are better managers or theorists. It makes the work stronger."

WHY YOU WOULDN'T BE A BEAKER-SCRUBBING LACKEY

"I want students to feel they're working with me as a peer and collaborator. This is a mini-graduate school experience; they get a lot of freedom. I love it when they go out and find new ideas. I expect them to contribute to the research and to the direction of the project. My job is to get out of the way."

the WOW factor

When you love video games, even your work can be play. Bea Metitiri spends her workdays improving the game she discovered and played as a teenager: World of Warcraft. The software engineer graduated from Mudd with a bachelor's in computer science, a group of newfound friends and fond memories of eating burgers with Bill Gates.

BEA METITIRI '12

ASSOCIATE SOFTWARE ENGINEER

BLIZZARD ENTERTAINMENT

HMC ALUMNI PROFILE **COMPUTER SCIENCE GRADUATE, HARVEY MUDD COLLEGE**

EARLY DECISION WAS THE BEST DECISION

"I had a pile of those letters and pamphlets that colleges send you during sophomore year in high school. The one that really stood out was from Mudd. It didn't look like it took itself too seriously, and it had all these quirky things such as students riding unicycles. And, the size—it's a place where students and professors are part of a small community that allows people to be themselves. I felt like I finally found where I fit. Once I saw that, there was really no other option. I knew I had to be a part of that community."

WORKING THE MUDD WAY

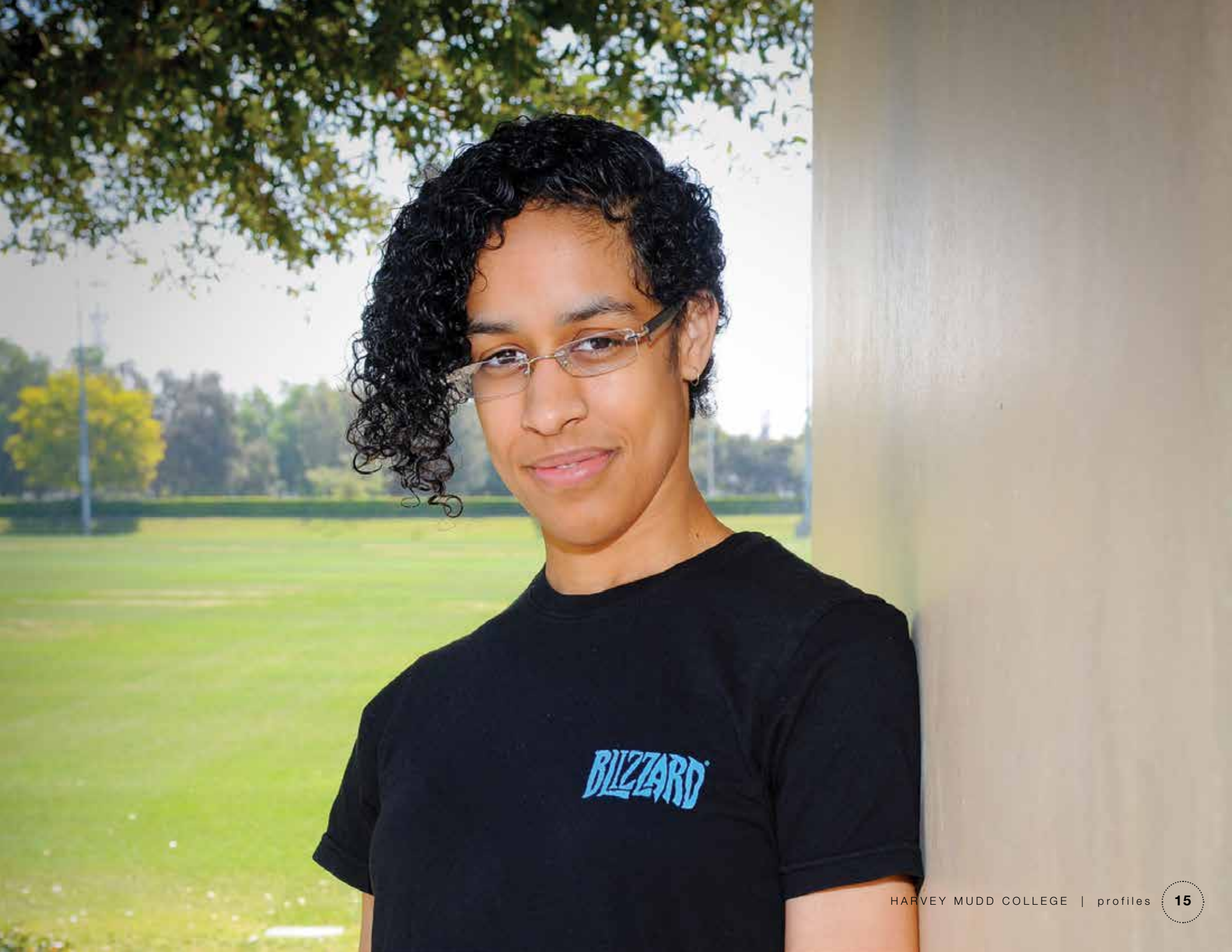
"On a big team, it's important to work well with others and communicate effectively. At Mudd, we had a lot of group projects, where students were given creative license, and we had to work together to make what we were envisioning. So, I got a lot of practice communicating about things I was passionate about, talking about the technical aspects of what I was working on and explaining those technical aspects to people who are not necessarily technically inclined."

CAPTIVATING CALIFORNIA

"I really love Southern California, especially the weather and the mentality—it is very laid back and liberal. It's an awesome place, especially the L.A. area, because it has so much culture and so many things to see. I just love being in the center of all of that."

BILL GATES AND BURGERS

"It was a great experience and something I love to tell people about: the day I met Bill Gates. I got to have lunch with him at President Klawe's house. He got to choose what we had for lunch, and he picked In-N-Out. It was interesting to see how he's just a regular person."


BLIZZARD

FLY guy

Stan Love '87 has a different perspective than most. That's what happens when you view Earth from 200 miles away. Stan, who learned to fly planes while at Mudd and went on to study asteroids, meteorites and impact craters as a planetary scientist, was one of the crew on Space Shuttle mission STS-122 (February 2008). He spent eight hours "walking" in space, longer than all but a few other astronauts in NASA history. Stan appreciates how some fundamental lessons taught at HMC apply to astronaut life.

STAN LOVE '87

PLANETARY SCIENTIST
NASA ASTRONAUT

HMC ALUMNI PROFILE **PHYSICS GRADUATE, HARVEY MUDD COLLEGE**

THE PRIVILEGE OF FLIGHT

"While I was at Mudd, the Bates Aeronautics Program at HMC [which ran until 1990], taught a few fortunate Mudders how to put aside our schoolwork and social concerns and really concentrate on flying. NASA astronauts fly in sleek jets (super-fast T38s), where it's important to focus on what you're doing because things happen fast at 600 mph. It's even more important in the Shuttle at 17,000 miles per hour."

IT TAKES A TEAM

"At Mudd, teamwork was essential in order to succeed. Later, at NASA, the same was true. The Shuttle crew participated in teamwork exercises to get used to working with each other. More than anything else, astronauts depend on each other to do their jobs correctly and safely."

IT TAKES A VERSATILE TEAM

"Flexibility is critical for space flight. There aren't enough seats on the Shuttle to bring an army of experts on every flight, so the on-orbit mission is executed by a few versatile people. During the mission, I learned I was to be the stand-in for an astronaut who fell ill. I had trained only as a backup and had two days to prepare for my first space walk. Luckily, my prior training as an arm operator prepared me for it, and we managed to get all of the important stuff done."

THE MANUAL

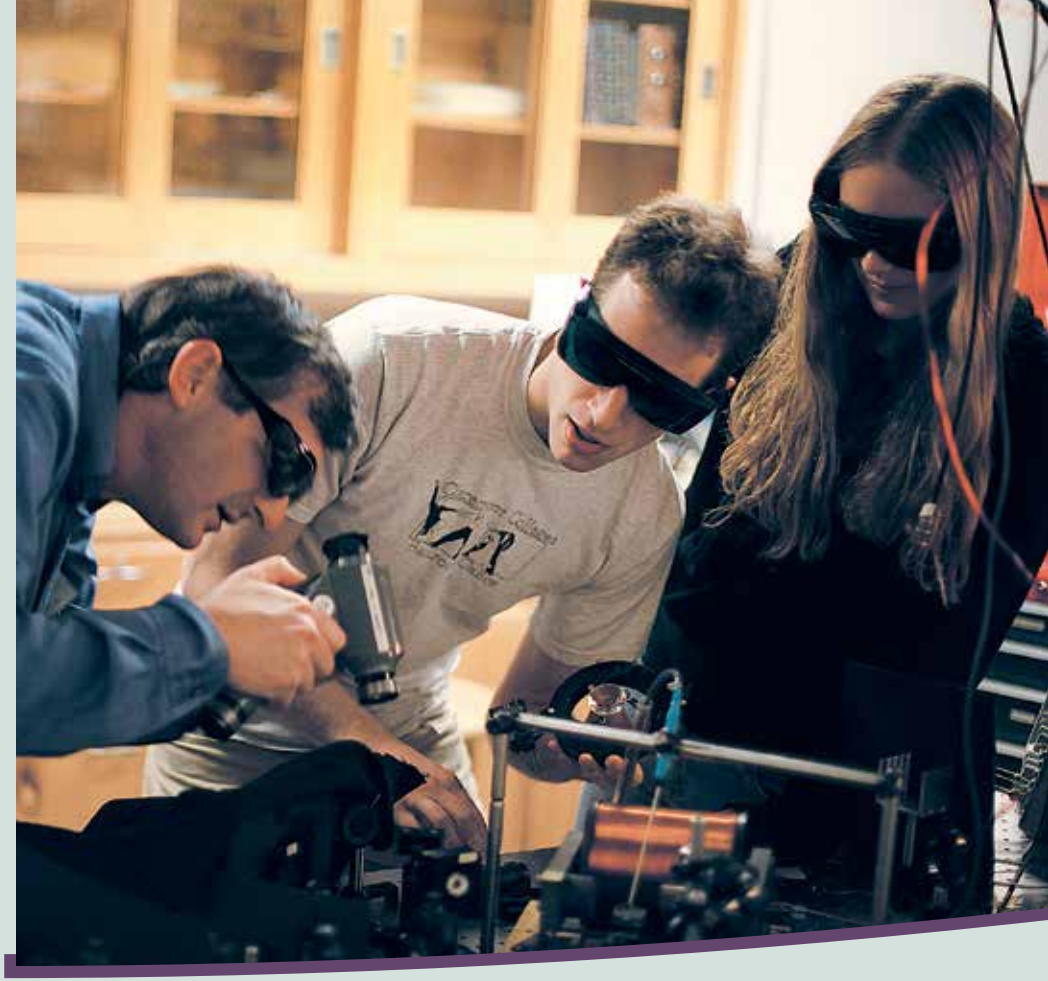
A GUIDE TO WHAT'S INSIDE US: the guts, the circuits, the networks, the people, the resources, the programs, the plans, the research.

The U.S. hadn't seen a new college of engineering, science and mathematics in 20 years when we came along in 1955. Our namesake, Harvey S. Mudd, was a mining engineer and co-founder of one of the richest copper mines in the world. He wanted the College to overcome the shortcomings of the traditional education offered to scientists and engineers—narrowly focused on specialized technical training in a single field. So, Harvey Mudd College was designed to offer a bold, interdisciplinary education for exceptionally skilled, broad-minded, socially conscious scientists and citizens.

- The big picture: there's no one like us. Our 780 undergraduates are some of the nation's brightest students. We don't have graduate students—which means our world-class faculty are dedicated to you. Our challenging Core curriculum features theoretical and applied work in every major field—giving you an essential foundation for meaningful practice in science. We also include a healthy dose of the humanities, social sciences and the arts, because we believe the best scientists understand their work's impact on society. We do exciting research, where students and professors work as colleagues in a shared enterprise. Our award-winning Clinic Program brings student teams and industry leaders together to solve real-world problems. We're small enough to feel like a family, but as a member of The Claremont Colleges, we have access to the resources of four other highly-ranked colleges and two of the country's best graduate schools. We're also in sunny Southern California near Los Angeles, at the foot of a majestic mountain range.

- Our students win prestigious awards, publish research as undergraduates, go to top-ranked graduate schools and shape the future of their fields. People who know about engineering, science and mathematics know about—and respect—us. From groundbreaking academic conferences to the headquarters of major engineering firms and pioneering high-tech companies, we are known for our rigorous curriculum and entrepreneurial spirit.

THE ACADEMIC PROGRAM



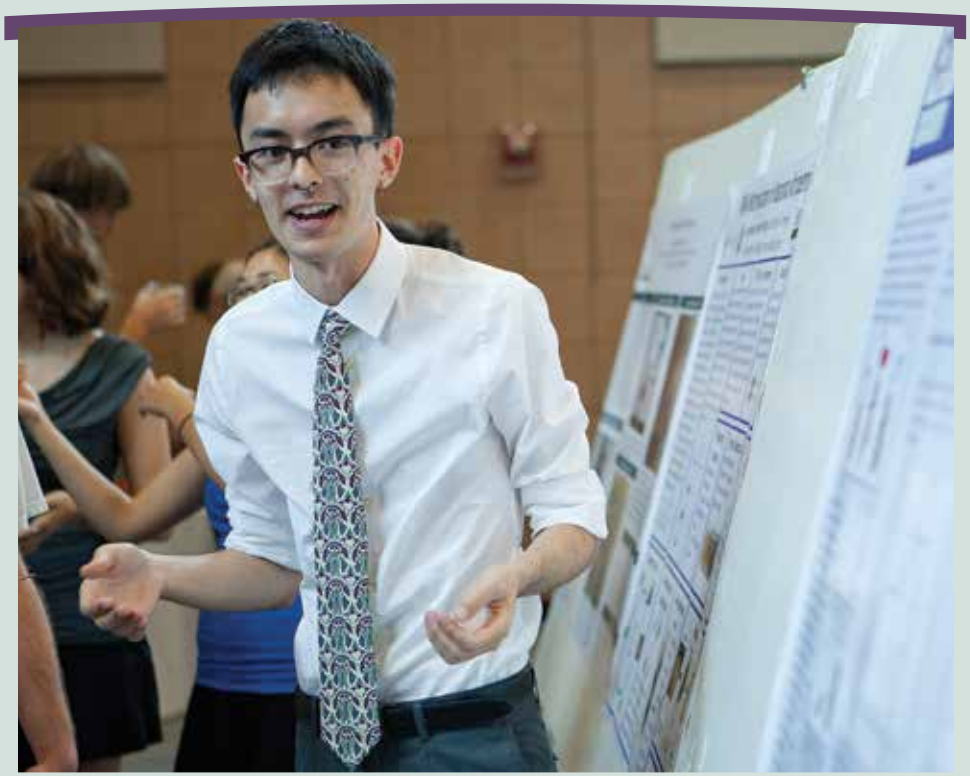
ALL THIS AND MORE, BRILLIANT UNDERGRADUATE

A friendly reminder: *That delicate, expensive equipment; those always-accessible, state-of-the-art labs; that complicated, Mudd-only computer network; those award-winning professors—all for Mudders. Not for graduate students, not for professional researchers who come and go like ghosts—for the brilliant, brave, crazy undergraduate.*

THE CURRICULUM It's not designed for drones or yes-men or mad geniuses who bark at their assistants and work feverishly on a single, incredibly specialized project all their lives. It's a boundless, unbridled, broad-shouldered, deep-thinking, hands-on education for people smart enough to know that the future is unformed, knowledge is impermanent, and tomorrow belongs to the fluid, the fluent, the hybrid. Our Core curriculum is intense and comprehensive, featuring an awe-inspiring amount of work in the humanities, social sciences and the arts, including a concentration—nearly a minor—in a specific discipline; major coursework that offers grounding in the theoretical foundation of a field and a stupendous amount of applied work, including at least a year of required research. It's also surprisingly flexible, including course options at The Claremont Colleges. You'll learn to think across disciplines and approach problem solving from multiple angles. You'll discover why your work is important and how it might impact society. And, most essentially, you'll be able to communicate your amazing ideas to others. You'll acquire the ability to write about, speak about and collaborate with others to promote your brilliant solution. In short, you'll be able to change the world.

THE CORE It's steeped in tradition, constantly evaluated, endlessly relevant and unlike anything you experienced in high school. It's a suite of classes—in chemistry and computer science, mathematics and modeling, physics and biology, engineering and the humanities, social sciences and the arts—designed to give you a scientist's essential tools: a thorough grounding in the foundational knowledge of the field, with hands-on experience in fundamental skills and applications and a broad understanding of the context in which science is practiced. It's also a bonding experience: You and your entering class will take it together, so you'll talk about it, work on it and conquer it together. Then, as you move through the rest of the curriculum, it will serve as a reference and a guide. It basically turns you into a human Swiss Army knife: exceedingly well-built, endlessly adaptable, totally indispensable.

ADVISING AND SUPPORT At some point, you realize that science is a community endeavor. Even if you're brilliant and self-sufficient and capable of producing extraordinarily sophisticated work, you won't do it alone. Our advising system, formal and informal, is comprehensive. The formal system includes the associate dean for academic affairs—a kind of all-purpose advisor who ensures that the HMC workload is sanely distributed—and a series of advisors to help you along the way: a first-year advisor, plus advisors in your major, in the humanities, social sciences and the arts program, and in your research projects or Clinic work. Our Academic Excellence program and our Writing Center encourage students to work together to improve their assignments. A full-time emotional health counselor serves HMC students exclusively, with additional support available through The Claremont Colleges' Monsour Counseling Center. The Dean of Students Office runs lots of programs designed to make your life richer—and more fun—including informative and entertaining Wednesday Nighters, stress-relieving Noisy Minutes and much more. The informal system is the network of relationships you'll develop with professors, administrators and staff—good people who keep their doors open, like to listen and know how to help you find academic, personal and professional resources. We take care of each other.



FACULTY You could read about their research interests in the departmental descriptions to follow. You could recall our low student-to-faculty ratio. You could skim our website and notice the teaching awards they've won, the major research grants they've secured and the groundbreaking work they've done. You could imagine that we hired them not because they're antisocial geniuses who loathe teaching, but because they're some of the country's premier researchers. And you'd be right. They love their work, love sharing it with students and believe that undergraduate education is the source of meaningful work in the sciences.

RESEARCH & CLINIC

WHY SHOULD GRADUATE STUDENTS HAVE ALL THE FUN?

RESEARCH By which we do not mean "spending a semester washing test tubes and staring at the back of a graduate student's lab coat." We're talking professional-grade, publishable, original work, done in collaboration with full-time, big-deal professors. And, we guarantee you'll do it—as early as your first year or during our expansive summer research program, or as a major contributor to a professor's ongoing project, or for your senior research thesis or your Clinic experience. It's not hard to see the practical benefits: you develop crucial skills (problem-solving, communication, leadership, teamwork, etc.), gain applied experience and expand the boundary of scientific knowledge. And you'll get plenty of hands-on experience. We believe that great science is lived and practiced, not just memorized as a static collection of facts, formulas and truths.

THE CLINIC PROGRAM We started our first Clinic—a yearlong investigation of a real-world research problem conducted on behalf of a nonprofit or corporate client—in 1963. Our students have worked for more than 400 clients—many of them Fortune 1000 companies—in more than 1,400 Clinics, and the program has become a model for engineering, mathematics and science schools nationwide. How does it work? Clients pay a fee to the College, and a team of students gets to solve a real problem with real consequences. A faculty advisor provides guidance and makes sure the team stays on course. A client liaison keeps tabs on the team's progress. The team spends a year—easily more than 1,200 work hours—doing what professionals do: talking, dreaming, planning, building, failing, starting again, leading, listening, freaking out, meeting deadlines, making presentations and delivering, in the end, a functional, efficient, possibly groundbreaking solution. These aren't amusing little exercises; they're serious projects that often lead to patents, job offers and an ongoing relationship between the College and the client.

RECENT CLINIC PROJECTS

Intel Corporation-Hillsboro: Rethinking Modern Media The team used computer science to reimagine how core parts of the TV experience could and should be improved to take advantage of modern technology and lifestyles.

Broadcom, in collaboration with Kogakuin University, Japan: Non-Intrusive Monitoring System for Isolated Elderly Individuals The Broadcom team designed, built and tested an imperceptible monitoring system to provide the elderly with a greater sense of security and to report their physical state to their family and friends.

BAE Systems: Adapting Brain-based Prosthetic Control for Everyday Use Using a commercial neuroheadset, team members used brain-machine interfaces to detect and identify signals between test subjects. Their goal: to control a prosthetic limb.

Lawrence Livermore National Laboratory: A Tunable Resonant Microwave Cavity for the Axion Dark Matter eXperiment (ADMX) As part of a collaborative effort with researchers from universities and laboratories around the world, HMC students simulated, designed, built and tested a large-volume, high-frequency resonant microwave cavity to potentially detect axions. The nature of dark-matter remains one of the biggest mysteries in physics today. If the dark-matter accounting for the bulk of all matter in the universe is axions, the only experiment sensitive enough to discover it is ADMX.

The Aerospace Corporation: Low-power Radar for Debris and Object Detection on a Picosat Utilizing aspects of radar design, digital hardware design and signal processing algorithms, the team developed a low-power, compact object detection radar system for integration in a Picosat cube satellite.

Citadel Investment Group: Optimizing Pairs Trading Portfolios The team studied a method of statistical arbitrage known as pairs trading, and developed an automated strategy for quantitatively constructing a portfolio of pairs that attempts to minimize risk while maximizing expected returns.

Paramount Pictures: Implementing Regenerative Braking on Launched Roller Coasters Students proposed an electro-magnetic system to improve the energy efficiency of a roller coaster. Their proof-of-concept design sought to recapture energy expended when the coaster brakes to a stop.

THE CURRICULUM

At every step, there's research and lab work and a collegial working relationship with our maniacally gifted professors. Start with core courses in the field: comparative physiology, ecology and environmental biology, evolutionary biology, molecular genetics, carbon compounds, organic chemistry—your essential toolkit. Choose your electives and design a personalized concentration. We offer a formal concentration in molecular biology, but you can also make one up in genetics, ecology, plant biology, whatever makes sense. Interested in ecology and environmental biology? We're part of a consortium that allows you to apply for the Semester in Environmental Science at the Ecosystems Center of the Marine Biological Laboratory in Woods Hole, Mass. And right across the street, you'll find a 75-acre field station for student research. You can also take courses at The Claremont Colleges (conservation biology, immunology, genetic analysis and more); and of course we have joint majors in mathematical and computational biology, and chemistry and biology (see "Special Programs").

BIOLOGY

THE PROGRAM

This will sound vaguely conspiratorial, but we're guided by the rule of seven. Maybe it's better to say that we're guided by seven principles. **One**: Education is a relationship. You will know your professors as real human beings. And like them. And they will know you. And so on. **Two**: Biology is interdisciplinary. You can't (and won't) study it in isolation. **Three**: The best answer is the next question. You'll be expected to solve open-ended, hypothesis-driven problems. **Four**: Education is active. We learn by doing. You'll be part of the process by which discoveries are made—i.e., you'll do original research. Often. **Five**: Clear speak is good. If you want the world to understand your work, you have to know how to explain it clearly. So you will learn how. **Six**: Biology is part of a web of larger concerns: social, political, cultural, ethical. You'll study and practice it in this context. **Seven**: The practice of science is fun. Several hours of fun per day is advised, pending departmental review. The preceding sentence was both a joke meant to provoke quiet, knowing laughter—and a serious statement of purpose.

THE FACULTY

- **CATHERINE S. MCFADDEN**, Vivian and D. Kenneth Baker Professor of Biology and Chair, Department of Biology (Ph.D., University of Washington): molecular systematics and speciation in corals.
- **STEPHEN C. ADOLPH**, Stuart Mudd Professor of Biology (Ph.D., University of Washington): physiological, evolutionary, and behavioral ecology of lizards; mathematical biology.
- **ANNA N. AHN**, Assoc. Professor of Biology (Ph.D., UC Berkeley): neural control and mechanics of locomotion.
- **ELIOT BUSH**, Assoc. Professor of Biology, Department of Biology (Ph.D., Caltech): molecular evolution and computational biology.
- **ELIZABETH GLATER**, Asst. Professor of Biology (Ph.D., Harvard University): the genetic basis of behavior.
- **KARL HAUSHALTER**, Assoc. Professor of Chemistry and Biology (Ph.D., Harvard University): interactions between proteins and nucleic acids; RNA interference and gene therapy approaches for treating HIV-AIDS.
- **DANIEL STOEBEL**, Asst. Professor of Biology (Ph.D., Stony Brook University): evolution of gene regulation in bacteria.

RECENT STUDENT RESEARCH

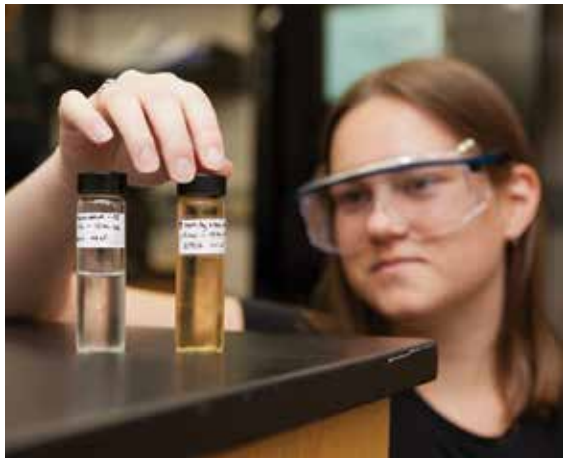
- Investigating the Neuronal Basis of Chemosensory Response to Bacterial Odorants in *Caenorhabditis elegans*
- Thermal Sensitivity of Sprint Speed in a Spiny Lizard
- Carbon Storage in Southern California Coastal Sage Scrub and Non-native Grassland Habitats
- In Vitro Reconstitution of tRNase Z Cleavage Reaction on Mutated tRNA-shRNA Chimera Substrates
- Rearrangements in the Mitochondrial Genome of Octocorals
- Horizontal Transfer and Phenotypic Impact of the Biofilm Regulators mqsRA in *Escherichia coli*
- Evolution of Cooperativity in an Artificial Chemistry
- A Synthetic Biology Approach to Test Conserved Regulatory Motifs in *Drosophila melanogaster*
- Various Conditions of Stress on the Selectivity of RpoS-dependent Promoters in *Escherichia coli*
- Thermal Sensitivity of Locomotory Performance in the Tarantula *Aphonopelma hentzi*
- Neural Control of Shod and Barefoot Running

THE CURRICULUM

Basically: essential knowledge and skills, experience in an expansive list of fields, research in the deep end and working partnerships with professors. Specifically, the foundation: rigorous core courses in the traditional fields of chemistry (analytical, inorganic, organic, physical and biochemistry). Then, a chance to explore specialized fields, from computational to industrial, from lasers to synthetic methods. Finally, intensive advanced courses and experimental research or project work in selected areas. Students can also take advantage of courses at The Claremont Colleges—from organometallic chemistry to pericyclic reactions, group theory to statistical thermodynamics. More than 80 percent of our students conduct research prior to their senior year. Our summer research program is especially robust: Up to 30 students receive a stipend to work with faculty on research projects for a 10-week period; the projects give students a leading role in solving a specific problem and independence in guiding the direction of the project. Our major is certified by the American Chemical Society; we offer specialized degrees in applied, computational, environmental and materials chemistry, as well as geochemistry and chemical education. Don't forget our joint major in chemistry and biology; it's under "Special Programs."

CHEMISTRY

THE PROGRAM



A few facts: More than 80 percent of our graduates go on to get their Ph.D.—one of the highest percentages of any college in the country. Our students regularly publish and co-author articles—again, one of the highest percentages in the country. Our students regularly win major awards: National Science Foundation, Churchill and Watson fellowships, Goldwater scholarships and more. And, we have the highest percentage of women majoring in chemistry of any college or university in the country. When you leave here, you'll be ready for anything: professional school (business, law, medicine), graduate work, or immediate and meaningful employment in a range of fields: materials science and pharmacology, genetics and oceanography, chemical engineering and viticulture.

THE FACULTY

- **HAL VAN RYSWYK**, Professor of Chemistry and Chair, Department of Chemistry (Ph.D., University of Wisconsin-Madison): materials for solar energy conversion.
- **ROBERT J. CAVE**, Professor of Chemistry (Ph.D., Caltech): electronic structure theory and the quantum mechanical treatment of electron transfer reactions.
- **G. WILLIAM DAUB**, Seeley Wintersmith Mudd Professor of Chemistry and Core Curriculum Director (Ph.D., Stanford University): the development of new regioselective and stereoselective reactions for organic synthesis.
- **KARL A. HAUSHALTER**, Assoc. Professor of Chemistry and Biology (Ph.D., Harvard University): design and characterization of RNA therapeutics to treat HIV-AIDS.
- **LELIA HAWKINS**, Barbara Stokes Dewey Assistant Professor of Chemistry (Ph.D., University of California, San Diego): characterization of light-absorbing compounds in atmospheric aerosol.
- **ADAM R. JOHNSON**, Professor of Chemistry (Ph.D., MIT): design of ligands for the synthesis of chiral metal complexes and enantioselective catalysis.
- **KERRY K. KARUKSTIS**, Ray and Mary Ingwersen Professor of Chemistry (Ph.D., Duke University): spectroscopic analyses of surfactant aggregations and macromolecular host-guest systems.
- **GERALD R. VAN HECKE '61**, Donald A. Strauss Professor of Chemistry (Ph.D., Princeton University): study of liquid crystals and the thermodynamics of liquids as revealed by lasers.
- **KATHERINE M. VAN HEUVELEN**, Asst. Professor of Chemistry (Ph.D., University of Wisconsin-Madison): synthesis and spectroscopic characterization of bio-inspired transition metal complexes.
- **DAVID A. VOSBURG**, Assoc. Professor of Chemistry (Ph.D., Scripps Research Institute): biomimetic and biosynthetic routes to natural products.

RECENT STUDENT RESEARCH

- Theoretical Studies of the Electronic Coupling Element in Peptide-Linked Donor-Acceptor Systems
- Analyte Detection via Surface-Oriented Liquid Crystals
- Aggregation Behavior of n-octyl-ß-D-gluco-side in 1-butyl-methylimidazolium Tetrafluoroborate
- Wastewater Treatment in Rural China
- Fluorinated Zinc Porphyrin Dyes on Zinc Oxide Nanotubes in Dye-Sensitized Solar Cells
- Optimizing HIV Gene Therapy: A Method of Measuring the Efficiency of tRNase Z Processing of Therapeutic tRNA-shRNA Chimeras
- Catalytic Intramolecular Asymmetric Hydroamination with Tantalum Complexes of Amino Alcohol Ligands
- Absorptive Characterization of Secondary Organic Aerosols in L.A. Urban Fog Water
- Spectroscopically Validated Computational Study of the Reduction of Haloalkanes by Cobaloximes

THE CURRICULUM

It starts with foundational knowledge, gets hands-on really quickly, gives you a lot of room to choose electives, and ends with the ultimate hybrid capstone experience—the Clinic. So, to start, you'd take one of our innovative introductory courses that expose you to the broad applicability of computing and the many intellectually creative activities that make up the field. Next, a course that examines the principles of computer science more deeply, followed by a course in data structures and program development. Then, you'd investigate some of the deep foundations of the field: computability and logic, algorithms, theory of programming languages, computer systems, software development. You'd also be thinking about electives—too many to list here, but suffice it to say you'd be looking at everything from artificial intelligence to neural networks, from scientific computing to compiler design, plus electives in mathematics and engineering, including mathematical logic, operations research, electronics, and microprocessors and VLSI. You could also check out our innovative joint major in computer science and mathematics as well as the mathematical and computational biology major; you'll find them in "Special Programs."

COMPUTER SCIENCE

THE PROGRAM

Our program is distinguished by a deliberate balance of foundational theory and practice. The foundational theory ensures that your background will remain relevant for the duration of your career. The practice ensures that you get the invaluable experience of designing, implementing and testing real and substantial software. Men and women—an extraordinary number of the latter compared to the national average of women CS majors—will get their hands dirty (lots of research, experimentation and design work, and a yearlong Clinic experience). You'll be challenged (interesting homework assignments, research projects and more). You'll meet others who love computer science (HMC students participate in all kinds of extracurricular activities related to CS, including sending more students to the annual Grace Hopper Celebration of Women in Computing conference than any other college or university). And, in the end, you'll be ready to join a leading graduate program or an innovative firm (In what? In anything—software engineering, system analysis and design, networking, computer graphics and multimedia, and more). You'll make a contribution to science, to computing, to the human experience.

- HMC has made four trips—most recently in 2010—to the world finals of the International Association of Computing Machinery Programming Contest. As of this printing, HMC remains the last U.S. institution and the only undergraduate college to ever win the contest (in 1997).

THE FACULTY

- **RAN LIBESKIND-HADAS**, R. Michael Shanahan Professor of Computer Science and Chair, Computer Science Department (Ph.D., University of Illinois at Urbana-Champaign): algorithms, computational biology, complexity theory.
- **ZACHARY DODDS**, Joseph B. Platt Professor of Effective Teaching and Professor of Computer Science (Ph.D., Yale University): real-time vision, vision-based mobile robot control, and robotic hand/eye coordination.
- **MICHAEL A. ERLINGER**, Csilla and Walt Foley Professor of Computer Science (Ph.D., UCLA): computer networking and computer security; in particular, protocol creation and evaluation.
- **ROBERT M. KELLER**, Professor of Computer Science (Ph.D., UC Berkeley): intelligent software, formal methods, machine learning, parallel computing, automating explanation of jazz chord progressions using idiomatic analysis.
- **GEOFF KUENNING**, Professor of Computer Science and Director of Computer Science Clinic (Ph.D., UCLA): computer storage systems; methods for studying the behavior of file systems, including tracing, modeling and analysis.
- **COLLEEN M. LEWIS**, Asst. Professor of Computer Science (Ph.D., UC Berkeley): computer science education.
- **MELISSA O'NEILL**, Professor of Computer Science (Ph.D., Simon Fraser University): languages for parallel computing, memory management, functional programming; user interface design.
- **CHRISTOPHER STONE**, Professor of Computer Science (Ph.D., Carnegie Mellon): programming language theory and implementation, particularly those areas involving type systems for functional and object-based languages.
- **ELIZABETH SWEEDYK**, Assoc. Professor of Computer Science (Ph.D., UC Berkeley): computer graphics, animation, educational video games.
- **BENJAMIN WIEDERMANN**, Asst. Professor of Computer Science (Ph.D., University of Texas at Austin): programming languages and tools; formal semantics (mathematical definitions of programming languages) and program analysis (automated reasoning about programs.

RECENT STUDENT RESEARCH

- Algorithms for Computational Biology
- Adaptive Ground Plane Modeling for Robot Navigation
- Learning to Play Jazz with Deep Belief Networks
- Visualizing Distributed Systems
- Hero in Vein: An Educational Game about HIV/AIDS
- Produce Shipment Visualization for Foodborne Illness Prevention
- A Vision for Spatial-Reasoning Commodity Robots
- Recognizing Recursion: The Comparison Between Traditional and Nontraditional Recursion
- Improving the Security of Android Inter-Component Communication
- Generating Realistic Datasets for Deduplication Analysis
- Extracting Flexible, Replayable Models from Large Block Traces

THE CURRICULUM

It's designed to make you an exceptionally skilled, totally adaptable engineer, grounded in fundamental principles and sensitive to human needs. It's a general engineering curriculum; majors can emphasize a specialty by choosing their electives and their Clinic carefully, but the idea is that the best undergraduate engineering education develops people who can do meaningful work in any field. So the curriculum is divided into three branches—applied science, systems, and design and professional practice—each offering rigorous analysis of theoretical principles and intensive hands-on experience. Courses in applied science establish a broad base of fundamental knowledge in the field; courses in systems offer a unified approach to engineering and practice in modeling, designing and interpretation of engineering systems; and courses in design and professional practice allow students to work in teams, solving open-ended, externally-driven design projects—a process that culminates in a required three-semester Clinic experience. Since 1962, the Department of Engineering has been accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology.

ENGINEERING

THE PROGRAM

You may have noticed, our program is one of the best in the nation. We have an eye (actually, many eyes) on the ever-changing practice of the engineering profession. The broad-based, hands-on experience you'll receive in engineering analysis, synthesis and practice will teach you how to think, frame and solve problems. You'll be prepared for professional practice, for advanced study in a specific engineering discipline and for a lifetime of independent learning. And, your awareness of the impact of your work on society will be integral to everything you do. We intentionally offer a general engineering program—with design being a distinguishing feature—that focuses on the fundamentals and the problem solving of engineering. Why? Contemporary and evolving issues won't confine themselves to a single discipline. The broad curriculum and contemporary projects like those in Clinic ensure our graduates have the confidence and skills to solve any number of challenges, no matter what complicated, messy, multidisciplinary problems the future holds.

THE FACULTY

- **ZIYAD H. DURÓN '81**, Jude and Eileen Laspa Professor of Engineering; Chair, Department of Engineering; Director, De Pietro Fellowship Program in Civil Engineering (Ph.D., Caltech): full-scale testing of structural response of civil structures.
- **LORI BASSMAN**, Professor of Engineering (Ph.D., Stanford University): computational mechanics.
- **ANTHONY BRIGHT**, John Leland Atwood Professor of Engineering Science (Ph.D., University of Bradford, England): hydrodynamics of liquid jets.
- **MARY CARDENAS**, LaFetra Associate Professor of Environmental Engineering (Ph.D., UC Santa Barbara): numerical modeling of toxic contaminants in water.
- **PHILIP D. CHA**, Professor of Engineering; C.F. Braun and Company Fellow (Ph.D., University of Michigan): parameter uncertainties in the dynamics of structures.
- **CHRISTOPHER CLARK**, Assoc. Professor of Engineering (Ph.D., Stanford University): systems engineering, robotics and controls engineering.
- **OKITSUGU FURUYA**, Clinical Professor of Engineering (Ph.D., Caltech): design, cavitation and fluids engineering.
- **KASH GOKLI**, Professor of Manufacturing Practice (M.S., University of Illinois, Urbana-Champaign): manufacturing/management and industrial engineering.
- **DAVID MONEY HARRIS**, Harvey S. Mudd Professor of Engineering Design; Director of the Clay-Wolkin Fellowship Program in Electrical Engineering; Director of the Engineering Computing Facility (Ph.D., Stanford University): high-speed integrated circuit design and microprocessors.
- **SARAH L. HARRIS**, Assoc. Professor of Engineering (Ph.D., Stanford University): VLSI circuit design.
- **ADRIAN HIGHTOWER**, Asst. Professor of Engineering (Ph.D., Caltech): development of metal alloys used in the electrodes of rechargeable batteries and ethanol fuel cells.
- **NANCY K. LAPE**, Assoc. Professor of Engineering; Assoc. Chair, Department of Engineering; Director of the Lewis Fellowship Program in Engineering Professional Practice (Ph.D., University of Minnesota): membrane process design.
- **PATRICK LITTLE**, J. Stanley and Mary Wig Johnson Professor of Engineering Management (D.Sc., MIT): reliability and management of transportation systems.

- **JOHN I. MOLINDER**, James Howard Kindelberger Professor of Engineering (Ph.D., Caltech): communication systems and signal processing.
- **ELIZABETH ORWIN '95**, Professor of Engineering; Assoc. Dean for Research and Experiential Learning; Director, Engman Fellowship Program in Biomechanics (Ph.D. University of Minnesota): tissue engineering, biomechanics.
- **DONALD S. REMER**, Oliver C. Field Professor of Engineering Economics (Ph.D., Caltech): management, investment and cost estimation techniques.
- **R. ERIK SPJUT**, Professor of Engineering; Union Oil Company Engineering Design Fellow; Director, Engineering Clinic (Ph.D., MIT): aerosols and radiant heat transfer.
- **RUYE WANG**, Professor of Engineering (Ph.D., Rutgers University): computer vision.
- **QIMIN YANG**, Assoc. Professor of Engineering and Assoc. Director, Engineering Clinic (Ph.D., Princeton): optical communications.

RECENT STUDENT RESEARCH

- Energy-Delay Tradeoffs in CMOS Multipliers
- Corneal Tissue Engineering
- Brain Patch for Traumatic Brain Injury
- Barrier Behavior of Human Skin
- Fragility Studies of Large Concrete Dams
- Autonomous Vehicles
- Investigation of Suspension Cable Bridge Response to Suddenly Applied Loading Conditions
- Tunable Nanocomposite Membranes for Gas Separations

THE CURRICULUM

At least one quarter of your coursework—11 courses—will be in humanities, social sciences and the arts, starting with HSA 10, Critical Inquiry, an intensive introduction to inquiry, writing and research in HSA through focused exploration of a particular topic, such as evaluating psychological claims; Socratic dialogues; the economics of oil and energy; or U.S.-China relations. In addition to HSA 10, you'll take at least 10 other HSA courses. To ensure breadth of study, these courses span at least five different disciplines, such as history, literature, political studies or art. To ensure depth of study, they must also include a four-course concentration in a single discipline or interdisciplinary program. You'll do significant writing in at least one of these courses. You can take about half of your required courses at the other Claremont Colleges.

HUMANITIES, SOCIAL SCIENCES, & THE ARTS

THE PROGRAM

Look no further than the College's mission to learn why humanities, social sciences and the arts are such an essential part of the HMC curriculum. The College is dedicated to providing a broad liberal arts education and a context for understanding the impact of science and engineering on society. The Department of Humanities, Social Sciences, and the Arts (HSA) is the second largest on campus and includes dedicated, creative teachers and researchers who have a passion for their chosen fields. The work you'll do in HSA will help you to become more intellectually discerning, broad-minded, self-aware and civically engaged. The College believes that this education and these skills are the foundation of a meaningful life in whatever field you choose to pursue.

THE FACULTY

- **WILLIAM ALVES**, Professor of Music and Chair, Department of Humanities, Social Sciences, and the Arts (D.M.A., University of Southern California): music composition, especially involving computer music, gamelan, tuning systems, abstract cinema.
- **ISABEL BALSEIRO**, Alexander and Adelaide Hixon Professor of Humanities (Ph.D., New York University): African and Latin American literary and visual culture, as well as postcolonial intellectual history in comparative perspective.
- **HAL S. BARRON**, Louisa and Robert Miller Professor of Humanities (Ph.D., University of Pennsylvania): U.S. social and cultural history, the cultural construction of the "rural" in the 20th century, the impact of ethnic food on American culture.
- **DAVID CUBEK**, Asst. Professor of Music and Director of the Claremont Concert Orchestra, Joint Music Program (D.M.A., Northwestern University): symphonic music since 1750; 18th and 19th century musical form and analysis.
- **MARIANNE DE LAET**, Assoc. Professor of Anthropology and Science, Technology and Society (Ph.D., University of Utrecht): practices of knowledge-making in scientific and other cultural environments, material effects of knowledge on the world, cultural influences that channel, organize, enable and constrain knowing.
- **ERIKA W. DYSON**, Iris and Howard Critchell Asst. Professor of Religious Studies (Ph.D., Columbia University): religion and science, intersections between social-change activism and religion.
- **GARY R. EVANS**, Ruth and Harvey Berry Professor of Entrepreneurial Leadership and Director, Entrepreneurial Network (Ph.D., UC Riverside): financial institutions and small business development, enterprise and entrepreneurship.
- **KEN FANDELL**, Assoc. Professor of Photography (M.F.A., University of Illinois at Chicago): interdisciplinary arts.
- **JEFFREY D. GROVES**, Professor of Literature and Vice President and Dean of the Faculty (Ph.D., Claremont Graduate School): 19th-century American trade publishing; the history of the book in America.
- **VIVIEN HAMILTON**, Asst. Professor of History (Ph.D., University of Toronto): history of physics, history of medicine, gender and science, disciplinary cultures in science.
- **CHARLES W. KAMM**, Assoc. Professor of Music and Director of Choirs, Joint Music Program (M.M.A., Yale University): 17th century performance practice, Scandinavian music, nationalism and the arts, aesthetics.
- **DEBRA MASHEK**, Assoc. Professor of Psychology and Assoc. Dean for Faculty Development (Ph.D., Stony Brook University): psychological implications of romantic relationships and community connectedness.
- **RACHEL MAYERI**, Assoc. Professor of Media Studies (M.F.A., UC San Diego): intersections of art and science in experimental documentaries and museum exhibits, from the Baroque origins of special effects to the science fictional discoveries of contemporary genetics.
- **PAUL STEINBERG**, Professor of Political Science and Environmental Policy (Ph.D., UC Santa Cruz): design of political institutions for the conservation of biological diversity, global environmental politics, qualitative research methods.
- **LISA M. SULLIVAN**, Willard W. Keith Jr. Fellow in the Humanities and Professor of Economic History and Chair of the Faculty (Ph.D., University of Toronto): work and human identity, the political economy of higher education, socio-economic themes in children's literature.
- **CHANG TAN**, Asst. Professor of Chinese Language and Culture (Ph.D., University of Texas at Austin): contemporary Chinese art and literature; modernism and cultural studies.
- **DARRYL WRIGHT**, Professor of Philosophy (Ph.D., University of Michigan): history of ethics; moral and political philosophy.

FIELDS OF CONCENTRATION

American Studies *
Anthropology *
Art and Art History*
Asian American Studies
Asian Studies
Black Studies (including Africana Studies) *
Chicana/o-Latina/o Studies
Chinese *
Classics
Cultural Studies *
Dance
Economics *
Education
Environmental Studies *
European Studies *
Foreign Languages
Gender Studies (including Women's Studies and Feminist Studies) *
German Studies
History *
History of Ideas
Holocaust and Human Rights
International Relations *
Jewish Studies *
Latin American Studies *
Linguistics
Literature (including English and Literature in translation) *
Media Studies *
Music *
Philosophy *
Political Studies (including Government and Public Policy) *
Psychology *
Religious Studies *
Science, Technology and Society *
Sociology
Theater

** indicates fields regularly covered by HMC faculty*

THE CURRICULUM

The major starts with the major Core, a set of advanced courses in a range of fields of mathematics: discrete mathematics, mathematical analysis, probability, abstract algebra and partial differential equations. Students also take a course in computational mathematics—essential to many fields and to most applied work in business and industry—at least three elective mathematics courses and two courses that allow students to present and discuss current topics in the literature. Our required capstone experience entails either a senior thesis—a sustained investigation of a complex problem—or a Clinic experience. Students can also take advantage of cooperative courses offered through The Claremont Colleges, including advanced work at Claremont Graduate University. And we still haven't mentioned our groundbreaking joint major programs: computer science and mathematics, and mathematical and computational biology. You can read more about them in "Special Programs."

MATHEMATICS

THE PROGRAM

Engaging faculty, a long list of students publishing in major journals, a thriving Clinic Program, two innovative joint major programs—all this, and the inaugural award in 2006 for the best mathematics department in the nation (by the American Mathematical Society). By every available quantitative measure, we rock. At the heart of the program is a pure, burning love for math and a broad vision of the field's potential. An astonishing number of our graduates enter preeminent Ph.D. programs, but they also take professional positions in finance, data management and technology, social media, biomedical research, education and computers.

■ Heard of the MCM? It's one of the most famous worldwide competitions in modeling (but not on a runway). You'll be "workin' it" during a grueling 96-hour contest that involves more than 2,000 entries per year. We've won more "Outstanding" awards than any college in the history of the competition. Another prestigious contest, the Putnam exam, attracts more than 400 college and university teams from the U.S. and Canada for a fiendishly difficult six-hour exam. HMC frequently finishes in the Top 10, despite the fact that our students are competing with universities with 10 times our enrollment.

THE FACULTY

- **ANDREW BERNOFF**, Kenneth and Diana Jonsson Professor of Mathematics and Chair, Department of Mathematics (Ph.D., University of Cambridge): fluid mechanics, biological swarming, and dynamical systems.
- **ARTHUR T. BENJAMIN**, Professor of Mathematics (Ph.D., Johns Hopkins University): combinatorics, number theory, game theory and graph theory; operations research.
- **ALFONSO CASTRO**, Professor of Mathematics (Ph.D., University of Cincinnati): partial differential equations and nonlinear functional analysis.
- **LISETTE DE PILLIS**, Norman F. Sprague, Jr. Professor of Mathematics and the Life Sciences and Director, Global Clinic (Ph.D., UCLA): mathematical biology, numerical linear algebra, parallel computing, computational fluid dynamics.
- **WEIQING GU**, Professor of Mathematics (Ph.D., University of Pennsylvania): differential geometry and topology; Grassmann manifolds; computer-aided geometric design.
- **JON JACOBSEN**, Assoc. Professor of Mathematics and Assoc. Dean for Academic Affairs (Ph.D., University of Utah): partial differential equations and mathematical biology.
- **DAGAN KARP**, Asst. Professor of Mathematics (Ph.D., University of British Columbia): algebraic geometry.
- **RACHEL LEVY**, Assoc. Professor of Mathematics (Ph.D., North Carolina State University): differential equations; modeling fluids in biological and geological systems.
- **SUSAN MARTONOSI**, Assoc. Professor of Mathematics; Director, Mathematics Clinic; Assoc. Chair, Department of Mathematics (Ph.D., MIT): operations research; homeland security; statistics.
- **MOHAMED OMAR**, Asst. Professor of Mathematics (Ph.D., UC Davis): combinatorics and graph theory.
- **MICHAEL ORRISON JR.**, Avery Professor of Mathematics (Ph.D., Dartmouth College): representation theory and applied representation theory.
- **NICHOLAS PIPPENGER**, Professor of Mathematics (Ph.D., MIT): computability.
- **FRANCIS SU**, Benediktsson-Karwa Professor of Mathematics (Ph.D., Harvard University): random walks on groups, combinatorial topology, mathematical economics and fair division.
- **TALITHIA WILLIAMS**, Asst. Professor of Mathematics and Assoc. Director, Mathematics Clinic (Ph.D., Rice University): applied statistics.
- **DARRYL YONG '96**, Assoc. Professor of Mathematics and Assoc. Dean for Diversity (Ph.D., University of Washington): applied mathematics, perturbation theory and mathematics education.

RECENT STUDENT RESEARCH

- Combinatorial Proofs Using Complex Weights
- Optimizing Restaurant Reservation Scheduling
- Voter Compatibility in Interval Societies
- Complexity Results for General Circuits in Various Classes
- Algebraic Reasoning in Elementary School Students
- A Multi-stage Model for Incidence Estimation with an Application to Cataracts in Africa
- Quadrotor Obstacle Avoidance
- A Comparison and Catalog of Intrinsic Tumor Growth Models
- Increasing Visibility of Vertices in Covert Networks via Vertex Removal
- The Science of the Lambs: Using Math to Fight Serial Crime
- Understanding Committee Elections Using Wreath Products

THE CURRICULUM

It's surprisingly flexible—students can take a range of electives and special courses—and intensely demanding. Our Core courses provide an immersive experience in foundational theory and practice. Specialized seminars and advanced reading courses feature rigorous, high-level work typically offered only in graduate programs. And professors expect students to join them on major research projects. Students become deeply knowledgeable and broadly experienced in classical and modern physics, in theory and experiment, in foundations and applications. Take note: our astronomy program is a joint venture with Pomona College; it includes foundational courses, half-courses and research opportunities.

PHYSICS

THE PROGRAM

We're pretty proud of what physics faculty members at some other very distinguished institutions have to say about us: "The physics program at Harvey Mudd College is truly excellent and among the very best at undergraduate institutions across the country. The curriculum has been carefully conceived and is effective in providing an outstanding education to students. The faculty are skilled teachers who are extremely accessible and wonderfully supportive to students, the research experiences offered to students are top-notch, the department is an important contributor to the excellence of the institution and the people in the department enjoy an esprit de corps that allows them to work together quite effectively." We couldn't have said it any better.

- Our students win many national awards, including the National Science Foundation Graduate Fellowship; the Hertz Foundation Graduate Fellowship; the Churchill Scholarship; and the American Physical Society's Apker Award for the most outstanding student physics research in the country (three winners and three finalists in the past 15 years). Our graduates go on to excellent Ph.D. programs or take leadership positions in a range of fields.

THE FACULTY

- **PETER N. SAETA**, Professor of Physics and Chair, Department of Physics (Ph.D., Harvard University): nonlinear optics and semiconductor physics, including surface and buried interface effects; plasmonic optical absorption enhancement in thin-film solar cells.
- **CHIH-YUNG CHEN**, Assoc. Professor of Physics (Ph.D., MIT): solid-state physics, including electromagnetic and optical properties of high-temperature superconductors and semiconductors; magnetic thin films.
- **THOMAS DONNELLY**, Professor of Physics (Ph.D., UC Berkeley): high-intensity laser physics, with applications to laser-induced fusion in micron-scale particles.
- **S. CHARLES DORET**, Asst. Professor of Physics (Ph.D., Harvard University): atomic physics, quantum information with trapped ions.
- **JAMES C. ECKERT**, Professor of Physics (Ph.D., University of Southern California): solid-state physics and materials science, including measurement of the electric, magnetic and thermodynamic properties of novel materials; spintronics.
- **ANN ESIN**, Assoc. Professor of Physics (Ph.D., Harvard University): astrophysics, including the study of accretion flows and emission processes around neutron stars and black holes; gravitational lensing.
- **SHARON GERBODE**, Asst. Professor of Physics (Ph.D., Cornell University): soft condensed matter and biophysics, including the biomechanics of plants.
- **RICHARD C. HASKELL**, Burton G. Bettingen Professor of Physics; Director, Physics Clinic; Director, Center for Environmental Studies (Ph.D., Johns Hopkins University): biophysics and biomedical optics, including optical coherence microscopy for non-invasive 3-D imaging of biological systems, and dynamic light scattering for the assembly of immuno-labeled gold nanoparticles; laser physics, quantum optics.
- **THERESA W. LYNN**, Assoc. Professor of Physics (Ph.D., Caltech): quantum optics and quantum information science.
- **GREGORY A. LYZENGA '75**, Professor of Physics (Ph.D., Caltech): geophysics, including observational study of crustal deformation and earthquakes using geodetic, seismological, and gravimetric methods; computer simulation of tectonic processes.
- **VATCHE SAHAKIAN**, Assoc. Professor of Physics (Ph.D., University of Chicago): theoretical physics, including string theory and cosmology.

- **PATRICIA D. SPARKS**, Professor of Physics (Ph.D., Cornell University): solid-state physics, including study of the optical properties of metals and interfaces and magnetic thin films.
- **JOHN S. TOWNSEND**, Susan and Bruce Worster Professor of Physics (Ph.D., Johns Hopkins University): theoretical particle physics; quantum field theory.

RECENT STUDENT RESEARCH

- Orbital Periods in Binary Microlensing Events
- Robotic Observations of Near Earth Objects and Other Astronomical Transients
- Developing an Electrostatic Levitation Device
- Scrambling in Matrix Theory Models of Black Holes
- GPS Geodetic Observations and Analysis of Crustal Deformation in Southern California
- Development of an Immunogold Labeling Technique for Analysis of a Tissue-Engineered Cornea Replacement
- A Search for Charm-Strange Baryons
- Properties of Barred Galaxies as a Function of Wavelength
- Change Transport in Dye-sensitized Solar Cells
- Distinguishability of Hyperentangled Bell States
- Resistance of Spin Valves with Varying Tantalum Seed Layer Thicknesses
- Harmonic Faraday Excitation with Applications in Laser-Driven Fusion
- Numerical Studies Non-Newtonian Viscoelastic Deformation Following Earthquakes

SPECIAL PROGRAMS & JOINT MAJORS

CHEMISTRY AND BIOLOGY The fields of chemistry and biology are intersecting in amazing ways. A wave of new graduate programs in chemical biology are engulfing the nation's finest universities. The tools of chemical synthesis, mechanistic analysis, thermodynamics, kinetics and molecular modeling are powerful tools to apply to complex biological systems. The emerging fields of genomics and computational biochemistry are transcending disciplines. HMC's visionary, boundary-defying joint major will give you a rigorous introduction to the two fields, a series of electives in related areas, a focused suite of courses in biochemistry and molecular biology and a capstone course team-taught by faculty from the two departments. You can take advantage of research colloquia in either biology or chemistry, and you'll write a senior research thesis supervised by faculty mentors in both departments. The future is yours: basic science or applied biomedical research, industry, government, academia.

COMPUTER SCIENCE AND MATHEMATICS Think of the overlap: techniques from formal logic are used to prove that a computer program correctly performs a specified task. Complexity theory uses techniques from mathematics and computer science to determine the "hardness" of a computational problem. Numerical analysis examines methods for computing numerical solutions to a variety of mathematical problems in areas ranging from medicine to aircraft design. Our integrated program of study includes foundational work across the disciplines, a raft of advanced technical electives, required colloquia and fora and a two-term Clinic project. The result? Perhaps a stellar career in software, mathematical finance, consulting—or a lifelong habit of being an entrepreneurial wizard. Perhaps graduate study in mathematics, computer science, operations research and other related fields—and then a career as a maverick professor.

MATHEMATICAL AND COMPUTATIONAL BIOLOGY Maybe you've heard people talk about this being the Century of Biology—by which they mean biology is becoming a kind of omnidiscipline, a field that registers in all other fields. And maybe you've suspected that the secret key to biology is mathematics. Maybe you knew that mathematical and computational components are vital to many areas of contemporary biological research, to wit: genomics, molecular modeling, structural biology, ecology, evolutionary biology, and systems analysis of neurobiology, physiology and metabolism. Maybe you want this joint major. It offers an immersive experience in the scientific and intellectual cultures of biology, mathematics and computer science, a wealth of interdisciplinary research opportunities in biomathematics, computational biology and quantitative biology, and advisors in both fields who can help you map the terrain of the next century.

EMPHASIS IN ENVIRONMENTAL ANALYSIS

Those who pursue this emphasis take six courses beyond the College Core curriculum in a structured program of study that includes at least two courses in science, engineering or mathematics and at least three from recognized disciplines within humanities, social sciences and the arts. If their research experience—summer, yearlong or Clinic—has a substantial environmental analysis component, students can seek approval to count it as one course of the required six-course total. Those who meet the requirements for the Emphasis in Environmental Analysis receive a certificate from the HMC Center for Environmental Studies.

3-2 PROGRAMS IN ENGINEERING

Two ways to get a degree in engineering from us—and an outstanding liberal arts degree from our friends in The Claremont Colleges. The Scripps College 3-2 Engineering Degree and the Claremont McKenna College (CMC) 3-2 Degree in Economics and Engineering work like this: you'd attend Scripps or CMC for three years, taking mathematics, science and general education courses; at the end of your junior year, you'd transfer to us and complete our requirements for general education and the engineering degree. Five years, two degrees.

THE OFF-CAMPUS MAJOR What if, in your second year, you decide to major in a field in the humanities, social sciences or the arts? Then, you could complete an off-campus major at one of the other Claremont Colleges. If you select a primary major that is off-campus, you must complete a minor in one of our major-granting departments, along with our other graduation requirements—the Core and the HMC program in the humanities, social sciences and the arts.

CAMPUS LIFE

What's it like? *It's like living in a quiet, tree-lined town at the base of snow-capped mountains with 780 friends who, like you, are totally committed to the life of the mind, love working on seemingly impossible problems, want to be part of an actual community, and would gladly spend a large amount of time producing a play, conceiving a prank, setting up a lab, watching the entire run of a convoluted television series, hiking the aforementioned snow-capped mountains, or anything else that would count as a healthy activity.*

THE LIVING SITUATION Nearly all students live in one of our eight residence halls, each with its own legend, its own aura. Student proctors in each dorm—seniors—serve as guides, role models and activity coordinators. In short, people are social. We live together, we study together, we work together, we assemble sofas in a courtyard and arrange them to look like Stonehenge. There's an institutional commitment to fun—to leading a healthy, balanced life.

ATHLETICS AND GENERAL RECREATION Claremont McKenna, HMC and Scripps join together as the CMS varsity athletic program to field NCAA Division III teams in the Southern California Intercollegiate Athletic Conference (SCIAC). Our men's teams have won more conference titles—178—than any other SCIAC program since our inception. Our women's teams have won the most titles—90—among women's programs. And CMS is the only program to have won a conference title in each sport; we've won all 21 sports at least twice. Meanwhile, in the world of general recreation, you can take (or organize) exercise programs sponsored by The Claremont Colleges—everything from fly-fishing to floor hockey, from kayaking to kickboxing. You could also go to our Linde Activities Center, home to aerobics and weight rooms; basketball, badminton and volleyball courts; Ping-Pong, foosball and air hockey tables; rental services for movies, sports equipment, and hiking and surfing equipment; a big-screen TV, and, when you're ready to cool down, a computing facility.

A TINY FRACTION OF THE **CLUBS** *and* **ORGANIZATIONS** *at* **THE CLAREMONT COLLEGES**

Amnesty International
BaconSHMC *
Barnstormers Club (aviation) *
Cheese Club *
Claremont Colleges
Ballroom Dance Company
Claremont Colleges Debate Union
Claremont Colleges Fencing Club
Claremont Concert and Chamber Choirs
Claremont Concert Orchestra
Claremont Shades (a capella)
Cycling Club
Delta-H (outdooring) *
DUCK! (improv) *
ESW/MOSS (Engineers for a Sustainable World/Mudders Organizing Sustainable Solutions) *
Gonzo Unicycle Madness *
H2Overdrive (surfing) *
Hash House Harriers (running) *
Harvey Wallbangers Climbing Club *
Hillel
International Place
Inter Varsity Christian Fellowship
Jam Society (music club) *
KSPC (radio station)
Lacrosse (men)
Martial Arts Club *
Mudd Business Association *
Mudders Making a Difference *
The Muddraker (newspaper) *
Muslim Students Association
Photography Club *
RobotSHMC *
Rugby (men, women)
Sailing Club *
Science Bus *
Society of Women Engineers (SWE) *
Ultimate Frisbee (men, women)

*denotes a club specific to HMC

VARSITY SPORTS

Basketball (men, women)
Baseball (men)
Cross Country (men, women)
Football (men)
Golf (men, women)
Lacrosse (women)
Soccer (men, women)
Softball (women)
Swimming (men, women)
Tennis (men, women)
Track and Field (men, women)
Volleyball (women)
Water Polo (men, women)

PRANKS Confession time. Throughout our history, our students have been known to build community (and have a little fun) by playing pranks. We're talking very complicated, labor-intensive pranks that are reversible, do no harm, and that we would totally admit to if necessary. Examples: students wedged a friend's Volkswagen Beetle into a hallway in East Dorm. Students dressed as construction workers, carrying "official" documents requesting its repair and removed a massive cannon from Caltech's campus. Students removed the furniture in the dean of students' office, set down a layer of fresh sod, and replaced the furniture. We're hoping you'll understand—and participate.

THE HONOR CODE "Every student is responsible for maintaining his or her integrity and the integrity of the College community in all academic matters and in all affairs concerning the community." That's our Honor Code. Students wrote it and watch over it, students are bound by it and live it every day. Professors return graded tests and assignments in open mailboxes. Students take closed-book, timed exams in their dorm rooms. Everyone has 24-hour access to our computers and many labs, studios and shops. If you break the Honor Code, you and your peers wrestle with the consequences. It's living proof that you're an adult, responsible to yourself and to your community. What a smart, sensible, sane way to live.

DIVERSITY Diversity has a real tangible meaning here. Why? Because science abhors sameness. The work we love would come to a halt if every scientist thought the same way, came from the same community, operated under the same assumptions. Science moves forward when someone approaches a problem in an unexpected way, applies new knowledge to an old truth, proposes a new vision of the way the world is arranged. And that happens only if the scientific community is, for lack of a better word, diverse. So we take it seriously. Our Office of Institutional Diversity leads the community in active discussion about issues of diversity (race, ethnicity, class, gender, sexual orientation, religion/spirituality, political ideology and national origin) and provides funding for cultural programs sponsored by student clubs and organizations. And we offer a network of student groups and campus resources dedicated to global awareness, cultural pluralism and personal achievement.

DIVERSITY: *A list of resources*

- Asian American Resource Center (CC)
- The Asian and Pacific Islander Sponsor Program at Mudd
- Black Student Affairs (CC)
- Chicano/Latino Student Affairs (CC)
- International Place (CC)
- Chaplains Office (CC)
- People Respecting Individuals' Sexualities at Mudd (PRISM)
- Queer Resource Center (CC)
- Society of Professional Latinos in STEMS
- Society of Women Engineers

"CC" indicates a program sponsored by The Claremont Colleges

THE CLAREMONT COLLEGES

We're a member of The Claremont Colleges, one of the nation's oldest college consortia. We're neighbors and partners with four outstanding undergraduate colleges and two innovative graduate schools. So you could walk across the street to Scripps and eat at their excellent dining hall. You could take a Russian class at Pomona, attend an environmental lecture at Pitzer, join the colleges' powerhouse athletic teams, play in its outstanding orchestra, throw a party and invite several thousand new friends.

■ You'd have access to 2,500 classes, 600 faculty members, more than 300 clubs and organizations, dozens of majors and minor programs, hundreds of social and cultural events, a library with two million volumes—basically a small, well-appointed university. But Mudd is still Mudd, Pitzer is still Pitzer, and so on. There's nothing like it in the United States.

Who are they? Why are they so beguiling?

POMONA COLLEGE: 1,586 students. Comprehensive liberal arts and sciences curriculum. Founded in 1887.

CLAREMONT GRADUATE UNIVERSITY: 2,265 students. Master's degrees in 38 fields and doctoral programs in 22 fields. Founded in 1925.

SCRIPPS COLLEGE: 966 students. 50 majors. Women's college. Founded in 1926.

CLAREMONT MCKENNA COLLEGE: 1,300 students, liberal arts curriculum emphasizing leadership, economics and public affairs. Founded in 1946.

HARVEY MUDD COLLEGE: 780 students. Perhaps you've heard of us. Founded in 1955.

PITZER COLLEGE: 1,100 students. 40 majors. Flexible curriculum, interdisciplinary study, intercultural experience and social responsibility. Founded in 1963.

KECK GRADUATE INSTITUTE: 140 students. First U.S. graduate school dedicated to applied life sciences. Founded in 1998.

CLAREMONT AND LOS ANGELES Claremont is a small city (pop. 37,000) with the heart of a small village. The center of the city—called, yes, The Village—is a dozen tree-lined blocks from campus. It is, in a word, adorable: specialty shops, galleries, cafes and restaurants housed in exquisitely preserved two-story historic buildings. It's also a town that serves seven colleges, which explains the presence of scores of restaurants; Rhino Records, your new favorite music store; a movie theater; a jazz and fondue night spot; and so on. And we need to mention that the city—and our campus—is bordered by the 10,000-foot San Gabriel Mountains.

■ Los Angeles—Chinatown, Rodeo Drive, Hollywood, the Dodgers, the Getty Center, the California Science Center. The greater L.A. area includes some of the country's most spectacular natural resources—from beaches to deserts to mountains and everything in between. From professional sports to theater to luxury shopping, downtown L.A. is only 50 minutes by commuter rail from Claremont.

BEYOND CAMPUS

ADVENTURES ABROAD Think STEM majors and study abroad can't coexist? Yes, they can! Each year, Mudd sends students all over the globe, from Australia to Ankara, Martinique to mainland China, and everywhere in between. Our study abroad office will work with you to locate a program with strong academics and your choice of living environment. Best of all, your financial aid travels with you, so your family's contribution to your college education remains exactly the same.

- Additional abroad opportunities are available through Global Clinic. Here's the formula: take HMC's cutting-edge Clinic program, toss in a partnership with students from a foreign university (from Iceland, Singapore and the like), hop on a plane to the partner school and collaborate. Recent projects found Mudders decontaminating arsenic-polluted groundwater and harnessing wasted automobile energy. You'll approach problems from a multinational perspective, resulting in more innovative solutions as well as great summer vacations.

- Mudders also travel abroad for many other school-sponsored projects, whether it's exploring the home territory of Dickens and Hardy in Professors Groves' and Eckert's literature class, presenting mathematical biology research about cataract surgery at a conference in Kenya or designing a solar water purifier using only basic tools.

BREAKING OUT OF THE BUBBLE A STEM background enables you to contribute to the community in some very special ways. In addition to the myriad volunteer opportunities that exist at The Claremont Colleges, there are a few programs unique to Mudd that allow you to use your passion for math and science. Through the Homework Hotline, you can provide help to local students with math and science homework. Science Bus takes you into neighboring elementary schools with hands-on (and fun!) science lessons, and culminates in a campus-wide Science Day for 4th, 5th and 6th graders. The FIRST Mentors Club gives you a chance to guide high school students as they design and build a robot. Even the chemistry department's lead contamination lab partners with elementary school students who assist with sample collection and learn as Mudders do the lab experimentation and analysis.

AND THEN WHAT?

LIFE AFTER MUDD **Roughly 40 percent of our seniors enter Ph.D. programs**, typically with full fellowships. (No undergraduate college sends a higher percentage of its graduates into doctoral programs. Think about it.) Nearly 60 percent of our seniors enter a professional field, with **starting salaries averaging $75,000 to $79,000** (PayScale just ranked Harvey Mudd No. 1 in the country for return on educational investment for the second year in a row). Our graduates don't follow a standard track. An engineer could become a film producer; a biologist could become a programmer for Google; a physicist could join the Peace Corps; a mathematician could pursue a Ph.D. in financial engineering at Princeton. They tend to be leaders, pioneers, visionaries. They make their own way.

OFFICE OF CAREER SERVICES A resource that will mean more to you with each passing day. Use it to find summer jobs or internships, to think about study abroad opportunities, to sit down with a friendly, trained professional to talk about your future. The office offers individual career counseling, an extensive library of print and online resources and workshops about resumes and interviews, skills development and self-assessment, job searches and graduate school selection. At the OCS World of Work seminars, you can meet HMC alumni and get a ground-level view of the world after Mudd. The office also coordinates on-campus interviews and career fairs and—this is important—keeps listings of resources available at the other Claremont Colleges. So, as always, your options keep expanding.

NOTABLE ALUMNI

BRIAN FLEMING '89, co-founder and producer, Sucker Punch Productions; Sly Cooper game series and *inFAMOUS*

JONATHAN GAY '89, creator of Flash software and *Dark Castle*

JANET COOKE HANSEN '90, founder and fashion engineer, Enlighted Designs Inc.

ROBERT KELLEY '67, nuclear physicist; member, Secretariat of the International Atomic Energy Agency, which won the 2005 Nobel Peace Prize

SUSAN LEWALLEN '76, co-founder, The Kilimanjaro Centre for Community Ophthalmology, Moshi, Tanzania

CATHERINE "KITTY" RESSLER '75, former vice president of engineering for QUALCOMM, innovator of precision location technology

GEORGE NELSON '72, NASA astronaut; walked in space in 1984, 1986 and 1988; director of science, mathematics and technology education, Western Washington University

SEAN PLOTT '08, World Cyber Games champion, co-founder of Jink.tv and host of "The Day[9] Daily" StarCraft gaming community webcast

GREGORY RAE '00, former Google employee; Tony award-winning producer of *The Normal Heart, Clybourne Park* and *Kinky Boots*

SCOTT STOKDYK '91/92, senior visual effects supervisor, Sony Pictures Imageworks; Academy Award winner, *Spider-Man 2*

MICHAEL G. WILSON '63, producer, *Casino Royale* and other James Bond films; expert on 19th-century photography

ADMISSION

WHO WE'RE LOOKING FOR Are you really talented in math, science or engineering, but interested in pretty much everything? Do you enjoy the company of others? Do you think the point of college is to know more, do more, be more and to live a bigger, brighter, bolder life? Are you, in other words, a full-blooded, broad-minded, curious, complicated, constantly expanding human being? Great! Please apply.

A FEW THINGS YOU SHOULD KNOW In a typical year, more than 3,500 students apply for 190 spaces in our first-year class. A lot of them have impressive GPAs and standardized test scores. We care about the numbers, but we're mostly concerned with what those numbers tell us about your non-numerical self: Do you seek challenge? Do you have an imagination, a love of learning, a life?

- You need to take two subject tests, one of which must be Math 2. The other can be in any discipline you want. We also require the SAT or the ACT with the writing option.
- A full-year course or equivalent in calculus, chemistry and physics must be completed upon graduation.
- An interview is not required, but we invite you to consider one—ideally before you submit an application. We conduct them on campus or on the road during the fall.
- If you have an unusual academic background (alternative programs, nontraditional, plan to graduate early, etc.), you should talk to us about ways to present your experiences completely and accurately.

INTERNATIONAL STUDENTS We welcome applications from international students. If English is your second (or third, or fourth) language, or if it has been your primary language for fewer than five years, we require the TOEFL or IELTS.

TRANSFER STUDENTS You should apply as a transfer student if you've spent at least one year in full-time college coursework and are not receiving concurrent high school credit. You'd need to enroll as a sophomore or junior, enter in the fall term, and spend at least four semesters at HMC. We look for a strong academic record and a high caliber of coursework; we also like to see that you've taken courses that are compatible with our Core Curriculum. Feel free to ask us for details.

HOW TO REACH US

PHONE 909.621.8011
MONDAY–FRIDAY

EMAIL ADMISSION@HMC.EDU

MAILING ADDRESS
HARVEY MUDD COLLEGE
OFFICE OF ADMISSION
AND FINANCIAL AID
301 PLATT BOULEVARD
CLAREMONT, CA 91711

HOW TO APPLY

GETTING STARTED Complete a Common Application at www.commonapp.org.

WHAT'S THE BIG DEAL WITH EARLY DECISION? If HMC is your one true love, the center of your multiverse, then you should consider applying Early Decision. Early Decision is binding–meaning you're committed to attend HMC if we admit you—and you're allowed to submit an Early Decision Application to only one school. Them's the rules.

DEADLINES

Program	Application Due Date	Response Date	Last chance to take SAT/ACT
Early Decision I	November 15	December 15	November
Early Decision II	January 1	February 15	December
Regular Decision	January 1	April 1	January

FINANCIAL AID

THE BIG PICTURE Money shouldn't stand in the way of the education you want. We're committed to meeting each student's full financial need; more than 75 percent of our students receive financial support with the majority awarded on the basis of need. We also provide an unusual amount of personal guidance and support. If your family's finances change, we'll re-examine your aid package. If you don't qualify for grants and scholarships, we'll help you find other resources. If you're just feeling lost or overwhelmed, we'll give you a map. We're here for you.

WHY WE'RE WORTH EVERY PENNY We believe that an education has value—quantitative and qualitative. Its quantitative value is the amount of the tuition and the material returns you get from paying the tuition: the chance to work with outstanding faculty in cutting-edge labs; the opportunity to conduct advanced research and solve real-world problems in our Clinics; the potential, as an HMC graduate, to get job offers averaging $75,000–$79,000 or be admitted to top-ranked graduate programs. Our alumni have a 0 percent default rate on their loans. At Harvey Mudd, we are definitely not into bragging about our accomplishments. That said, we're still proud that *Bloomberg Businessweek* reports our grads receive an average $1.7 million return on their educational investment, and PayScale has ranked us in the top spot for return on educational investment for the past two years.

HOW IT WORKS We use your Free Application for Federal Student Aid (FAFSA) to determine your eligibility for federal and state aid; we use your CSS PROFILE and other information to determine your eligibility for funding from the College. The general formula is this: subtract your family's estimated contribution to the cost of college from the actual cost. The remainder is the amount of aid you'd be qualified to receive. We'd meet your need with a package of grants, scholarships, low-interest loans and employment opportunities—whatever will most effectively support you.

HOW TO APPLY

Here's what you have to do:

CSS PROFILE Due February 1 for Regular Decision applicants; November 15 for Early Decision applicants; and January 2 for Early Decision II applicants, in addition to a copy of the prior year's federal tax return. Our code is #4341.

FREE APPLICATION FOR FEDERAL STUDENT AID (FAFSA) Due February 1. Our federal school code is #001171.

CAL GRANT GPA VERIFICATION FORM Only if you're a resident of California. Due March 2.

A SIGNED COPY OF THE PRIOR YEAR'S FEDERAL INCOME TAX returns, including all schedules, W-2s and 1099s. Due April 15 to the College Board.

QUICK FACTS *about aid*

- Our admission process is need blind (for all U.S. citizens and permanent residents)
- We guarantee to meet 100 percent of demonstrated financial need
- More than 75 percent of students receive need-based and/or merit-based financial aid
- Our graduates have a default rate of 0 percent on their loans

MERIT AWARDS

FIRST SCHOLARSHIP An annual, renewable award of $10,000 given to one student who has demonstrated leadership and "gracious professionalism" in FIRST Robotics.

THE HARVEY S. MUDD MERIT AWARD Annual, renewable awards of $10,000, offered to the top students in the admitted pool who demonstrate superior academic achievement and ability to contribute to the College community.

NATIONAL MERIT SCHOLARSHIPS Awarded to National Merit finalists who name HMC as their first choice school with the National Merit Scholarship Corporation and do not receive a corporate-sponsored or a one-time National Merit Scholarship Corporation scholarship. Scholarships range from $1,000 to $2,000 per year depending on the recipient's financial need.

PRESIDENT'S SCHOLARS PROGRAM A four-year, renewable, full-tuition scholarship that promotes excellence and diversity. Recipients generally come from populations that are traditionally underrepresented at HMC and show exceptional promise as scholars and citizens.

THE SO INTERNATIONAL SCHOLARSHIP A fund that supports international students and non-citizens or non-residents living in the United States. If you fit that description, you'll be considered for an award. Recipients are selected based on superior academic performance. Established by Yuen Sang and Yu Yuen Kit So, parents of Peter '86 and Paul '88.

THE RIF SCHOLARSHIP A one-year, non-renewable award offered by the Department of Mathematics for up to three incoming students who demonstrate exceptional mathematical ability. Award amounts vary from year to year, with a minimum scholarship amount of $1,000.

HOW TO REACH US WE'RE AVAILABLE BY PHONE 909.621.8055 MONDAY–FRIDAY OR BY EMAIL FINANCIAL_AID@HMC.EDU. OUR WEBSITE WWW.HMC.EDU/ADMISSION OFFERS THE MOST CURRENT AND DETAILED INFORMATION ABOUT OUR FINANCIAL AID PROGRAM, PLUS A RANGE OF RESOURCES TO HELP YOU PLAN FOR THE ROAD AHEAD. WE'RE HERE TO HELP.

VISITING

Why you should come. *You can't understand a place until you've been there. "Small campus," "tight-knit community," "world-class research facilities," "foam party"—these are just abstractions. They'll come vividly to life when you visit.*

WHAT YOU COULD DO WHEN YOU'RE HERE Take a tour. Your student tour guide will show you around campus for an hour or so. We give regular tours on weekdays and on selected Saturday mornings in the fall. Visit our website to schedule your tour.

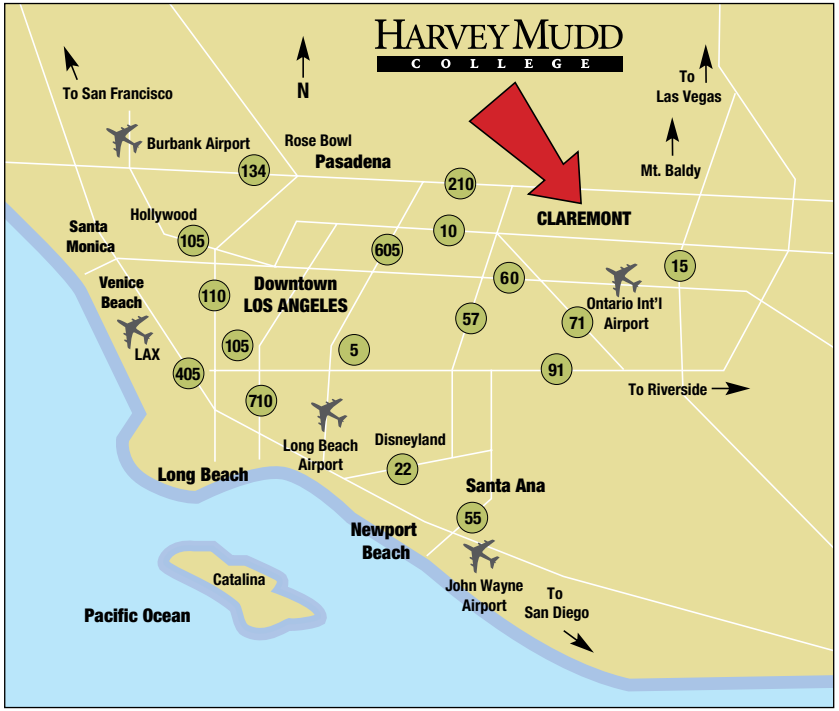
- Have an interview. Not required—but recommended. Not formal and tense; in fact, relaxed and friendly. We'd talk about your interests, your ideas, the College. We'd have a conversation, basically. You could schedule an interview as early as the spring of your junior year, but we'll probably have more to talk about if you wait until summer or the fall of your senior year.
- Stay overnight. You'll befriend a student host, get free meals, stay in one of our residence halls, and generally feel like you have an all-access pass to the community. Space may be limited, so call at least two weeks in advance.
- Mingle. Meet with a (warm, funny, responsive, brilliant) faculty member, join a (lively, provocative, brain-bending) class. Imagine working with these people and taking those classes every day of your imminent future.

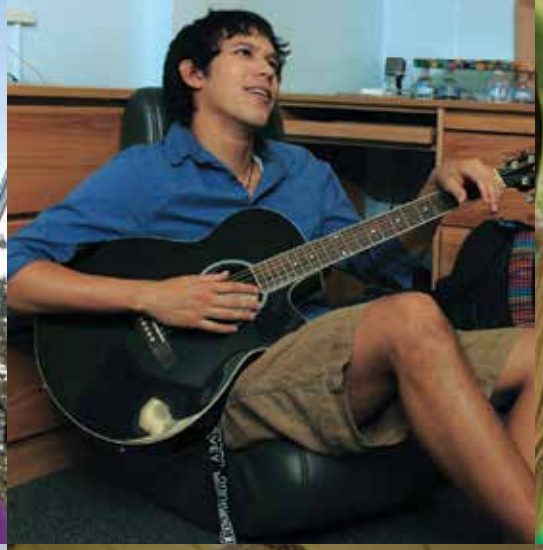
HOW TO GET STARTED Visit our website at www.hmc.edu/admission where you'll find travel tips, a list of local hotels and instructions on how to schedule your on-campus itinerary. It's best to see us when classes are in session (mid-September to early December; late January to early May). You can schedule a visit at other times, but the activity level on campus might be a bit quiet.

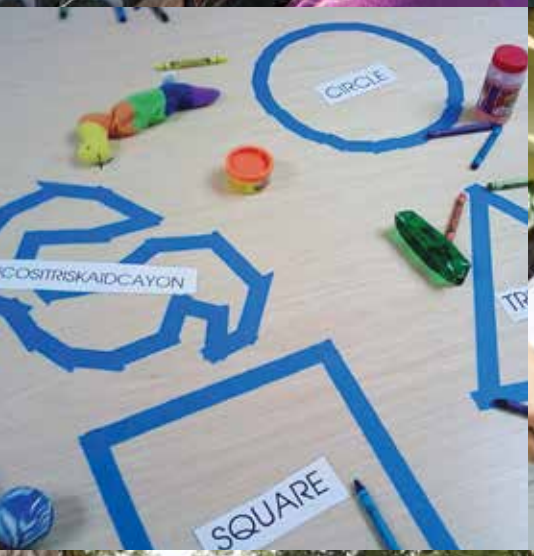
HEY, THINGS CHANGE As of this exact moment, all information contained in this publication is accurate. Bona fide truth. But, of course, things can change. So for any last-minute switches, unforeseen hitches or cosmic glitches, visit our website at www.hmc.edu/admission.

TRANSPORTATION We're in Claremont, a relatively short drive from Los Angeles. The Metrolink (the region's commuter rail service) can take you from L.A. to Claremont in 50 minutes. If you're coming by plane, you could use the convenient Ontario International Airport, 10 miles from campus.

Southern California Area Map



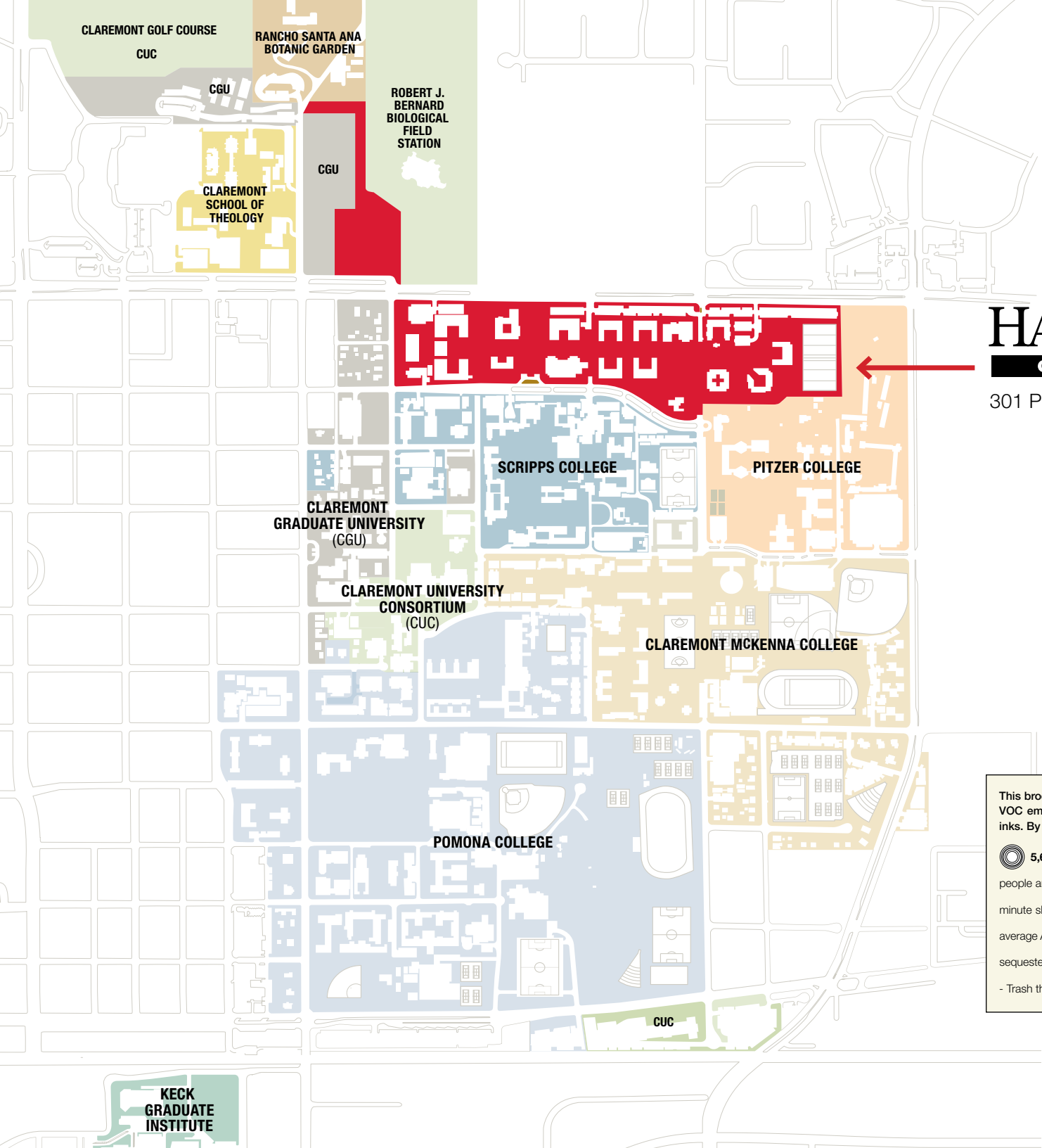




WANT MORE?

WE THOUGHT YOU MIGHT

www.youtube.com/user/harveymuddcollege



HARVEY MUDD COLLEGE

301 Platt Boulevard, Claremont, CA 91711

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5,640 lbs. of wood - A total of 18 trees that supply enough oxygen for 9 people annually. **8,236 gallons of water** - Enough water to take 479 eight-minute showers. **6 million BTUs of energy** - Enough energy to power an average American household for 23 days. **1,710 lbs. of emissions** - Carbon sequestered by 20 tree seedlings grown for 10 years. **500 lbs. of solid waste** - Trash thrown away by 109 people in a single day.

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