Summer internships

UPOP Students on the Move — Planes, Trains and Automobiles

Keeping Washington Metro on track

At the Washington Metropolitan Area Transit Authority (WMATA), Arin Rogers ’11, Jesse Thornburg ’11, and Amy Jacobi ’11 stayed on track of public transit-related projects. Rogers tackled the maintenance of train washes and drainage pumping stations, and Thornburg focused on the steel propulsion mechanism for the WMATA’s oldest trains, ensuring that all the components could “withstand the force required to move a 40-ton vehicle.” Meanwhile, Jacobi worked in the WMATA planning department to analyze ridership and car loads for Washington’s Metrorail over the last three years. She discovered that “the Metro is still growing, just not as fast as it once was, and not during the typical A.M. and P.M. rush periods.”

Managing spare parts data for the ultimate driving machine

Ian Tracy ’11 spent the summer at the wheel of the world’s ultimate driving machine: BMW in Munich, Germany. Tracy designed and implemented a sorting algorithm that can manage all the data associated with a given car part. Through frequent visits and instruction at various labs and test facilities, he learned about the automotive industry and its inherently competing priorities: “the balance between producing good appearance, reducing cost and saving resources, and most importantly … [creating] a product that will ensure the utmost safety standards for its customers.” Tracy observed similarities between the egalitarian climate of BMW and the Institute: “the work … is uplifting and enjoyable, since there does not seem to be a steep hierarchy—as in, all work together without displaying any superiority in rank—much like the collaborative environment present at MIT.”

Designing software for unmanned aerial systems

When flight becomes too dull or dangerous, Insitu soars in. The company produces unmanned aerial systems (UAS) for missions—like environmental monitoring, military reconnaissance, and disaster relief—that are too tedious or risky for human pilots. Andrew Wang ’11 contributed to the development of a 16-foot-wingspan airplane, improving the simulation software that helps verify parameters during the design phase. “My team is responsible for developing high-quality, reproducible simulations of the aircraft behavior from launch to landing,” Wang told us. “It’s fun to work in an open and collaborative environment, where I can share suggestions that are incremental but have effect.”

“UPOP exposes students to leadership methods early on in their careers—and it’s at least as rewarding for the mentor-instructors as it is for the students.”

Barry Bronfin
Principal Managing Director
MorningSight Capital LLC

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UPOP students get moving during summer 2009 (left to right): Arin Rogers tackled Washington Metro’s maintenance schedule; Ian Tracy worked on a sorting algorithm for BMW in Munich; Andrew Wang worked on simulation software for unmanned aircraft at Insitu, Inc.

photos | courtesy of the students
Dear Friends of UPOP,

Fall is here and UPOP students have returned to campus from their summer internships. Through a series of reflection activities we encourage students to relate their summer experience to UPOP learning objectives from the past year and to their individual career plans.

More than ever, this year’s career conversations are tinged with anxiety. Even our strongest students—with high GPAs, stellar recommendations, and significant campus engagement—are learning that in this sluggish economy, MIT graduates face stiff competition for jobs.

Students understand that practical experience and professional networking can be determining factors in employment success. By participating in UPOP, students improve their interpersonal and applied technical skills while they build relationships with engineering leaders, and gain valuable industry experience. In so doing, they are strengthening their candidacy for full-time jobs upon graduation.

While internships provide opportunities for students to gain experience and a competitive edge in the job market, they also provide employers with access to top talent. For many employers, summer interns comprise a primary pool from which to recruit full-time staff. In fact, employers surveyed by the National Association of Colleges and Employers (NACE) reported that more than one-third of their new college graduates hired in 2008 came from their internship programs.

Regardless of whether students ultimately work for the company where they interned, experience matters. According to the NACE study, over 75 percent of employers prefer to hire new college graduates who have relevant work experience, and nearly 20 percent of employers reported that they prefer any type of work experience to none at all.

UPOP is an educational program and does not guarantee students internships, but we typically succeed in matching 85 percent of our sophomores with industry opportunities; the remaining students can apply their UPOP skills in on-campus research or volunteer work. More than finding the student a summer job, UPOP teaches students the essential skills they need to find and attain opportunities now and in the future, and to succeed once on the job.

Friends and partners like you make this all possible. By hiring UPOP interns, you provide a challenging venue in which they can practice new skills. By volunteering to help teach our students, you infuse their academic learning with your professional insights. And by including UPOP in your giving priorities, you ensure that we can continue to offer UPOP to every MIT student who wants to participate.

Thanks for all you do—and will do—for UPOP. I look forward to our continued work together.

Susann Luperfoy
reinforce UPOP's learning objectives by providing challenging internships. Thomson Reuters has hosted UPOP interns since 2004, and sent multiple representatives to mentor and teach students during UPOP's weeklong professional development workshops.

UPOP mentor and guest speaker Ken Ross '75 leads the West Technology division, based in Eagan, Minn., which builds and maintains the company's online products, including Westlaw, a legal research service. As a senior vice president and chief technology officer, he oversees West's content-capture and editorial systems, 1600 staff members—and he personally mentors the MIT interns. Ross is motivated by a desire to support the careers of young engineers, and to expose college students to the wealth of opportunities at the company.

“Thomson Reuters hires 50 interns a year through a competitive selection process. Students receive help with housing and travel, comprehensive training, and the opportunity to interact with executives over ‘lunch and learn’ events.

Even more valuable is the mentoring provided to the interns. "The proof is in the results," says Ross. "When interns leave they have had really good experiences, learned a lot, and enjoyed themselves. They come away with a good understanding of working in a company environment. They get the ‘real world’ experience, a building block on what UPOP is teaching."

Ross notes that UPOP's preparation in communication and workplace dynamics sets its students apart from their peers:

“I really see a difference. UPOP really does give the interns the tools they need to be successful."

Moreover, he says, the support provided by the UPOP staff in identifying candidates and troubleshooting any issues that arise “makes my job easier. I'm less likely to have challenges finding interns and making them successful with this support.”

UPOP students at Thomson Reuters, summer 2009

Nana Yaa Fordjour ‘11 worked on Thomson Reuters’ proprietary relationship and entity identification system. She was impressed by her strong team of co-workers, with its diversity of thinking styles and personalities: “Since the team has every kind of personality, the results tend to be well-rounded. For example, the developers and testers strive to get a web product functioning... Then the editorial part of the team suggests ways to increase the aesthetic value and quality of the content. Finally, we have the managers reminding the entire team to get things done when they should. In the end, the product looks good, does what it’s supposed to and gets completed in time.” She notes another huge bonus: “the team members are friendly and get along very well."

Somani Patnaik ‘11 worked in Thomson Reuters’ brand-new Bangalore office, and was entrusted to improve quality and maintainability of the company’s proprietary legal search engine. Patnaik created a regression test suite in JUnit, and made recommends for refactoring the code for future releases. “I think I have had a successful summer internship,” says Patnaik, “I really wanted to understand the dynamics of working in a corporate environment. Working in India [for an American company]... really helped me understand the detailed working of the system."

Wissam Jarjou ‘11 played a critical role in building out a web-based application used to monitor and report the activity and health of the company’s citation-checking systems. He got first-hand experience with the agile software development method: “We have to meet every day and work very closely together, not only amongst developers and testers separately, but also between the two teams. I believe this helps build a healthier and more professional relationship amongst the team members, ultimately making the progress of the team much smoother and more predictable."

Nikhil Sud ‘11 performed a variety of technical and project management tasks as part of the West Technology initiative to integrate and roll out the third-party Clarity accounting and reporting system. Sud was pleased with the outcome of his internship: “I wanted to get an insider’s view of a professional office environment and decide whether a job in the information technology industry was a good fit for me. I achieved both of these objectives.”

Somani Patnaik and Nana Yaa Fordjour were among the several UPOP interns at Thomson Reuters during summer 2009. Patnaik was part of the startup Bangalore office, working on the company’s legal search engine. In Minneapolis, Fordjour worked on the relationship and entity identification system.
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Ken Ross ’75
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UPOP Mentor
Barry Bronfin: “Go for it!”

Barry Bronfin ’60, principal managing director at MorningSight Capital LLC and a two-time UPOP mentor-instructor, has just three words for aspiring entrepreneurs who long to launch novel technology companies:

“Go for it!”

His second directive—“Learn from experience how modern enterprises function”—comes from a long career meshing technology and business, and realizing the aspirations of visionaries like himself.

In his early career, Bronfin was a research scientist, then founded and took public two companies before moving into the venture capital field.

“Major corporate, governmental and independent R&D facilities are all set for you,” he says. “They typically have adequate funding, excellent resources and outstanding talent. Use them. Learn volumes about the way things work in the real world of science and engineering; experience how to lead a team and accomplish goals in that special environment; THEN go for it.”

Entrepreneurs at successful ventures, he says, effectively link to major enterprises. Without knowing how to tap into resources, markets, and capital, a lone individual pursuing an idea, no matter how brilliant, will likely fail.

UPOP fosters this essential awareness of systems, institutions and teamwork, says Bronfin. “It exposes students to leadership methods early in their careers,” he says. “Development of my own managerial skills was delayed too long after graduating MIT.”

Bronfin’s youthful curiosity about nature and science led him to MIT at 16—where he got a wake-up call: his high school ability to rapidly churn out a full day of A-worthy assignments required a readjustment: he got a 17 on his first exam. “I quickly adopted a new Institute-appropriate work ethic.”

He majored in chemical engineering, and joined the Naval ROTC program, but deferred active duty service in the U.S. Navy until completing SB, SM, and ScD degrees at MIT. After working at the U.S. Naval Research Laboratory in his native Washington, D.C., he joined the R&D team at the United Technologies Research Center, spending roughly a decade overseeing research in physical chemistry, molecular kinetics and laser media. He eventually became Principal Scientist, and also earned an MBA at Yale.

At United Technologies he encountered an obstacle that became a career turning point:

his group needed major new laboratory instrumentation, costs for which exceeded the then-available capital budget. “If we can’t purchase the equipment,” Bronfin reasoned at the time, “maybe we can lease it.”

But he found the leasing industry didn’t offer suitable terms and conditions for sophisticated research apparatus. His problem was not unique, an insight that led Bronfin to establish Scientific Leasing Inc. in 1968. He quickly learned about the challenges of first-time technology-based entrepreneurship: “It’s extremely hard work. I had to apply leadership and teamwork skills that I hadn’t tried before.”

When he sold the company in 1985, it was publicly traded, employed 125 people and owned approximately $500 million of capital equipment on lease. He then launched, took public, and sold in 1995, another capital equipment financing corporation. He next transitioned into the venture capital field, through 2004 at Axiom Venture Partners, and now with MorningSight Capital, a boutique investment bank that serves privately held technology companies and venture capital funds.

An active alum, he sees participation in UPOP as a fulfilling vehicle for advancing the mission of the Institute. “UPOP is at least as rewarding for the mentor-instructors as it is for the students.”

He summarizes his role and goal with a quote from John Quincy Adams. “If you inspire others to dream more, learn more, do more and become more, you are a leader.”

Barry Bronfin ’60, principal managing director at MorningSight Capital, with his UPOP students at the 2009 weeklong professional development workshop. “UPOP is at least as rewarding for the mentors as it is for the students,” he says.

photo | sharona jacobs