



At MITRE, student summer workers and co-op students are part of the team, not an afterthought. They learn. They contribute. And they leave behind a tangible legacy ... if they leave at all.

Class of 2005

SUMMER AT MITRE IS THE INTERGENERATIONAL SEASON,

when the population peaks and the average age declines.

At summer's end, those numbers return to normal as the annual influx of high school, college, and graduate student employees returns to school.

Hiring summer and co-op students is a long-standing tradition at MITRE that keeps growing, judging by the size of this year's class—120, including 23 co-ops (students who are hired to work full time during the academic term in assignments that advance their academic progress). Fresh from helping to recruit them, Corporate Recruiting Manager Gary Cluff said, "It's good to see that many of our managers realize the impact these students have on their projects."

Significant impact

And these students do leave their mark. "They're a real force multiplier," says Ron Williams, a section leader in signal processing for the Center for Air Force Command and Control Systems (CAFC2S). CAFC2S has had a long-term relationship with the Northeastern University co-op program and with numerous other schools.

Every year, Williams hires five or six students in his department and four or five in other departments.

"What distinguishes MITRE is that we give students real hands-on technical work," says Williams. "They pick up a lot of practical experience and work day to day with experienced engineers." They are paid and treated like professionals. Several students have co-authored conference papers—"a big win for them," he adds.

A group of students from Thomas Jefferson High School in McLean, Va., worked four consecutive summers for the Center for Advanced Aviation System Development (CAASD). The prototype avionics software they developed supported the testing of the Universal Access Transceiver, a new technology developed at CAASD.

Marc Vilain—a principal scientist in the Center for Integrated Intelligence Systems (CIIS)—has had two students helping with

a project using language analysis methods to find financial fraud. "They did everything from data collection and analysis to writing code that will stay around for some time," he says, plus conducting 10,000 computational learning experiments.

Five patents, dozens of journal articles, and winning entries in the Intel Science Search are among the products of the summer student research program in nanotechnology, which has been in existence since 1993. Its founder, James Ellenbogen, senior principal scientist in the Nanosystems Group, says the students "bring their energy, enthusiasm, and knowledge, and leave behind a lot of insight for the senior staff." In fact, senior staff conduct briefings all year based on student research.

Three members of this year's class—Marin Halper, Sarah Marzen, and Austin Kennedy—briefed a group of MITRE senior executives and government representatives about their research on designing practical nano-enabled systems. "These are real forefront research and development projects," says Ellenbogen.

Finding each other

In recruiting, MITRE managers look for students who are academically sound and can apply strong technical skills to solve problems. But they also emphasize the ability to communicate and to collaborate:

MITRE's "Class of 2005" included (page 2, left) CAASD students Emmanuel Cephas, Agnieszka Koscielniak, James Dieteman, Alan Leung, Matthew Rim, Joseph Bylund, and Steven Hechtman in the cockpit simulator; (page 2, right) MITRE-New Jersey students Richard Manfredy, Yevgeny Ivanyutin, Reynald Benoit, and Derreck Fuschino with mentor Paul Barr; (below, left) Nanosystems Group staff member Mark Taczak with students Austin Kennedy, Brigitte Rolfe (staff), Marin Halper, and Sarah Marzen; (below, right) Air Force Center students Nimit Barochia, Sarah Zwicker, John Kolba, Dennis Cuccaro, and Daniel Gandhi.



"These are so important, especially at MITRE," says Paul Barr, technical manager for the Battle Command Systems Engineering division at MITRE-New Jersey. During his group interview, he asks students to give a short presentation about themselves; then he poses a trick problem to see how they respond.

Many of the summer student hires are recruited by the HR organization or through university co-op programs. Students also find their way here via referrals by MITRE employees or other ad hoc connections. Nathan Woodhull, a Rensselaer senior who recently completed his fourth summer at MITRE, learned about the company while talking with the coach of a soccer team whose game he was refereeing.

Alan Leung, a mechanical engineering major at Virginia Tech, learned about MITRE through a guidance counselor whose colleague was married to a MITRE employee. "It's been excellent," he says. Working in CAASD to research the LORAN navigation system and cockpit displays, he says he's learned a lot—"expanding what I've learned at school and then applying it."

Another CAASD summer student, Elizabeth Davis, learned about the company from an uncle who works for the Federal Aviation Administration. "It's a fantastic place," she says, and well worth a fairly long commute from her home.

Staying on at MITRE

Though most of the class has scattered and returned to their schools, Halper plans to stay on full time. The 2005 Yale graduate, who majored in mathematics and economics, he spent four summers here. He chose MITRE because of its sense of

community and because "there's freedom and mobility between projects."

Now he joins a sizable group of co-op and summer alumni who have taken root at MITRE. And that's part of the goal, after all. "We view the co-op program as a really important part of the recruiting process," says Williams. "Some of our best staff were former Northeastern co-ops." Barr, who describes the co-op program as "growing our own future," counts at least a dozen former students among the approximately 139 employees at MITRE-New Jersey.

In his four years with the Center for Information and Technology (CI&T), Technology Evangelist Doug Phair has seen at least four co-op students hired. Phair is a champion of co-op programs who knows their value from both sides—that's how he got his own start here some 18 years ago. "Some of my best ideas come from the students," says Phair, who hopes to expand the program throughout his division.

Challenges

Setting aside the minor challenges of adjusting to the corporate world, commuting to their jobs every day, and dressing up for the office, the students reach for the big challenges. "It's an amazing experience," says Marzen about her time at MITRE. "I think you develop interest in a project after you find out how hard it is and how challenging it is."

In Eatontown, Barr recognizes that thirst for a challenge, and likes to give his students tasks way over their heads. "I discovered that if you give them a challenge, they rush to it, and—unencumbered by too much knowledge—they'll solve the problem."

—Amy Dail and Shari Dwyer

Back to the Books

Curious. Creative. Motivated. Enthusiastic. Those were among the words chosen by the "Class of 2005" to describe themselves.

Russian-born **Yevgeny (Gene) Ivanyutin**, a Stevens Institute (Hoboken, N.J.) senior, has worked with a team of students testing mesh networks at MITRE-New Jersey in Eatontown. "It's the greatest learning experience of my life," he says. And the learning and collaboration extend beyond the technical. A group of colleagues taught him to play bridge and recruited him into their daily lunchtime game.

Another Russian, **Lev Novikov**, is a third-year student at Rochester Institute of Technology. In his first year at MITRE, he graded the experience as an A+ and says, "I'm finding the amount of direction just right."

John Kolba spent the summer at CAFC2S working on space-based radar and netted sensors. When not at MITRE, the senior from Lafayette College in Easton, Pa., acted in a theater group production of "Hello, Dolly!"

Varsity lacrosse player **Corina Tom** helped the AFC create a demo for the Host Identity Protocol (HIP) process. Then she and a friend started their cross-country drive back to Harvey Mudd College in Claremont, Calif.

Working at CIIS on the Bedford campus, **Rob Quimby** was one of several students from Franklin W. Olin College of Engineering in Needham, Mass. MITRE's Marc Vilain wants to cement a closer relationship with Olin, which enrolled its first freshman class in 2002. "The way we at MITRE see the world is congruent with the way Olin sees the world," he says, referring to the interdisciplinary and collaborative aspects of engineering.

Reprinted from *MITRE Matters* September/October 2005 by MITRE Corporate Communications and Knowledge Services.

The MITRE Corporation; www.mitre.org
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Approved for public release: 05-1192. Distribution unlimited.
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