INFORMATION TECHNOLOGY

Russian Universities Educate World's Top Student Programmers

Western industry seeks the country's young talent, despite its ailing higher-education system

ST. PETERSBURG, RUSSIA

NEAR THE SUMMER PALACE of Peter the Great, young men filter in and out of a cramped computer lab for cigarette breaks in the stairwell on the second floor of the department of mathematics and mechanics at St. Petersburg State University.

The scent of raw sewage pervades the stairwell's dank air. The campus is crisscrossed by alleys of badly cracked asphalt and narrow dirt paths among waist-high weeds. Large panes of glass are missing from window frames. Doors have been replaced with sheets of corrugated metal.

But the decrepit conditions—which reflect a decade-long decline in government support for higher education—belie the world-class computer talent found here. A three-man team from St. Petersburg State won the International Collegiate Programming Contest World Finals, staged last spring by the Association for Computing Machinery, a scholarly organization. in Orlando. Fla.

Teams had to write computer programs to solve eight puzzles or problems. Using the Pascal computer language, the St. Petersburg State team solved seven of the eight problems in the five-hour time limit.

Four other Russian teams also placed among the top 15 of the 60 competing squads, giving Russia the best showing of any nation. The St. Petersburg State Institute of Fine Mechanics and Optics tied for fourth place, while Moscow State University was one of seven institutions to tie for 11th. Novosibirsk State University and Southern Urals State University tied with six other institutions for 15th place.

The top squad from the United States was from the California Institute of Technology, which placed ninth. All five Russian teams performed better than the squads from Cornell, Duke, and Harvard Universities.

'I FEEL ONLY PRIDE FOR MY COUNTRY'

Such results indicate that—despite outdated equipment, poor facilities, and meager salaries—computer programming in this nation remains first-rate, according to scholars and students.

"I feel only pride for my country," says Andrei Lopatin, one of the three members of St. Petersburg State's world-championship team.

He and his teammates—Oleg Yeterevsky and Nikolai Durov—were in their second year of study when they won the contest. The sponsor of the event, the International Business Machines Corporation, offered $3,000 prizes and internships to all three—but has yet to deliver the ThinkPad computers promised to the victors, they say.

"During the first month back, everyone was congratulating us. But nothing has really changed, since the opinion on cam-

JAMES HILL FOR THE CHRONICLE

Oleg Yeterevsky (right), with Maxim Shafirov, both of St. Petersburg State's top-rated programming team: "Of course students from our university should win."

pus is that of course students from our university should win," says Mr. Yeterevsky.

Russian computer-science students differ from their counterparts in the West, many here say, because the Russian education system places much more emphasis on basic mathematics and science.

"The skills base that the Russians bring is very strong in the area of systems software—the very kinds of the most basic and important levels of computer science," says Jason Horowitz, who manages the Russian-program office at Sun Microsystems.

"Russian students have a much deeper understanding of the models of mathematics," says Alexei Odinokov, general co-manager of an Intel Corporation lab in Nizhny Novgorod, a city that was closed to Westerners in Soviet times.

A FLEXIBLE APPROACH

Such mathematical training provides Russian computer programmers with more flexibility in crafting computer software, Mr. Odinokov says. "In the West, they know one algorithm and try to apply it

more efficiently," he says. Russian programmers, by contrast, consider other algorithms that could be used to solve a programming problem, he says.

However, both men say that Russian programmers sometimes fail to grasp the realities of producing commercial software.

"The cultural difference is seen when you have scientists working on a task trying to perfect it when, in some cases in industrial development, it is more important to meet a deadline and get it out of the gate rather than make it perfect and ship it later," Mr. Odinokov says.

Mr. Horowitz says some Russian programmers just don't understand how technology actually gets to market. "It's not what we think of just as marketing and advertising, but a sense of what types of technology are going to catch on, and what types of technology are more useful and important," he says.

"What is sometimes hard for the technical mind to understand is that it's not always the coolest or the most complex tech-

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nology that ends up being the winner in the market," Mr. Horowitz says.

Still, Russian programmers are much in demand. A majority of Intel programmers in Nizhny Novgorod were recruited from local institutions, such as Nizhny Novgorod State University and Nizhny Novgorod State Technical University.

MATCHING TALENT WITH JOBS

A former professor of computer science at Moscow State University has created one of the best-known conduits between Russian programming talent and informa-

tion-technology companies in the West. Auriga Inc., founded by Alexei Sukharev in 1993, is based in New Hampshire but leases space in a basement lab at the Moscow university for the staff of its Software Development Center.

The company's Web site recruits programmers throughout the country and aggressively markets the cost-effectiveness of outsourcing projects to Russia, where programmers can gross as much as $2,000 a month.

"The unemployment rate is low in the United States, and it's really hard to get skilled engineers in general," Mr. Odinokov says. "We

can hire more people for the same amount of money."

Indeed, throughout the country—in lesser-known cities such as Tomsk and in small towns such as Akademgorodok, both in Siberia—students and recent graduates sit hunched before computers in labs doing freelance computer programming.

STRONG CORPORATE SUPPORT

Companies such as Hewlett-Packard, Motorola, and Philips have signed agreements of cooperation with St. Petersburg State Technical University, where an estimated 150 computer-science students do piecework while enrolled in classes, says Vadim Korablev, vice rector in charge of international relations at the university.

Mr. Korablev says his institution also cultivates relationships with domestic industry to groom students for work in the northwest region, and to stem emigration by graduates.

But the extra money does not come with a benefits package or a full sense of accomplishment, be-

cause many never see the completed computer program for which they wrote a segment. And the work generally is limited to those who know English.

Still, brain drain is an ever-present worry. President Vladimir Pu-

> "In some cases in industrial development, it is more important to meet a deadline and get it out of the gate rather than make it perfect."

tin, in a speech in August to the Russian Academy of Sciences, said that 30,000 Russian scientists now work abroad. The communications minister, Leonid Reiman, recently warned of a new wave of "computer brain drain" after the German government offered to swiftly approve five-year work visas for up to 20,000 foreign information-technology experts.

Such concerns seem far from the mind of Mr. Yeterevsky, one of the members of St. Petersburg State's winning team of programmers.

"After the competition, we went to New York and Paris. Right now I know, for sure, that my favorite city is St. Petersburg," Mr. Yeterevsky says.

"Winning was great, but it doesn't compare with the goal of finishing university," he says. "That is more important, even more prestigious."

But the coach of the winning team already has received offers from overseas companies. "I've had invitations to work abroad, but for the time being, I'm not ready," says Maxim Shafirov, himself a graduate student in computer science at St. Petersburg State.

He says he owes a debt to the country whose education system imparted the knowledge that has enabled him to live better than most.

"All the same," he allows, "overseas they can make you a proposal that's awfully hard to refuse." ∎