Fulbright Scholar **Elizabeth Jensen '07** calls Peacham, Vermont, home, but she's about to join a distinguished computing group at the University of Tromsø, Norway, where she will design and implement a group of partially autonomous robots.

As information technology and robotics shape the landscape of the 21st century, Jensen — a Phi Beta Kappa who majored in computer science and psychology — is looking forward to the challenges and possibilities of a world in which anything is possible.

By Carole Leigh Engblom

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Q: How did you get interested in computers?

For as long as I can remember, my family has had computers in the house. I used them to play games, to write papers and to dabble in programming. It wasn't until I took a course in the Scheme language, the summer before I started college, that I began to see the ways in which programming could be more than playing a game or copying code from a book. Instead of putting the emphasis on learning syntax and commands, the Scheme course focused on the logic of programming. Creating Scheme programs was a challenging, but fun, logic puzzle with a meaningful end product, and I was fascinated by the possibilities.

Q: What is the "High Performance Distributed Computing Group" at the University of Tromsø?

The group works on computing problems that require a large number of calculations in a very short amount of time. This can be accomplished by using many
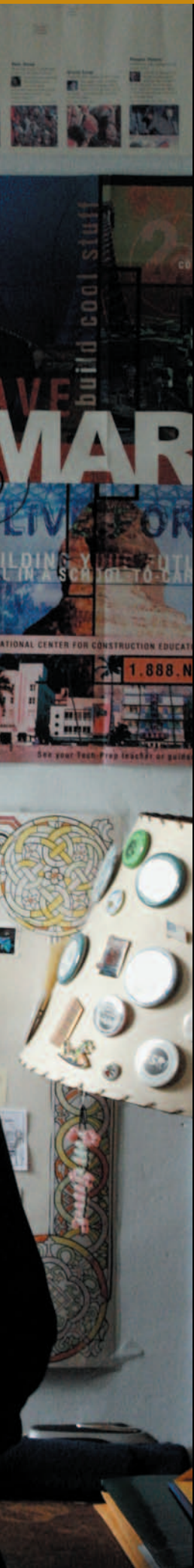
computers, also called a cluster, in which the individual machines work on different parts of the problem simultaneously, thus reducing the overall computation time.

My proposed Fulbright project will build upon an existing system in which a group of small robots is tied to a cluster that directs the robots in carrying out a set of tasks. To make the system more adaptable to its environment, I plan to make the robots slightly more autonomous, so that they can continue to work even when not in contact with the cluster.

Q: How did you become interested in robotics?
It all started with Legos. Like computers, Legos have always been a part of my life. When I was 12, I was given a set of the Lego Mindstorms Robotics Invention System for Christmas. I don't think I left the set or the computer for longer than it took to eat meals and sleep during the following week. I could make Lego creations that moved and responded to their surroundings. From there, it was just a matter of finding enough of the right pieces.

Q: How does psychology figure into these interests?
It's an excellent basis for looking into artificial intelligence, which is another of my interests in computer science. Knowing how human and animal minds work can help us to simulate the same processes in computers.

Q: What do you most love about the field you've chosen to work in?
The challenge. There are always problems that stump me for days or weeks. It often seems that I'll never figure it out, but puzzling it through is half the fun. As I work, I find solutions to other problems and many ways not to solve the current problem. I think the process of working things out is more important than finding the answer. I always end up learning more from solving the challenging problems than the easy ones.

Q: What were some memorable moments in your St. Olaf education?
Designing our entry in the Midwest Instructional Computing Symposium's robotics contest this past spring with two other members of the Computer Science Department was a lot of fun. It became especially interesting when, four days before the contest, we decided to scrap our first idea, which had taken us two weeks to build, and start again with a completely different design. We all learned quite a lot about designing robots and also had a great time.

Q: You've traveled to India, Scotland and now to Norway. Why these destinations?
I went to Chennai, India, with a small group of students and professors through a Lilly grant. Three of us were there to modernize the computer science curriculum for the International Church Service Association's program for disadvantaged students. In two weeks we put together the entire syllabus, found suitable tutorials on most of the topics and wrote some of the instruction and quizzes.

I came to St. Olaf knowing that I wanted to study abroad for at least one semester. I found the University of Aberdeen [Scotland] because I was looking for robotics building activities for a course I was teaching. It has a great program, and two courses I wanted to take were offered the semester that I was able to go abroad, both of which met the requirements for the computer science major.

As for Norway, my family lived there when I was very young because my parents both worked for an oil company and were transferred there for three and a half years. I've always wanted to go back. Since I took Norwegian at St. Olaf, Norway seemed like the best country to apply to for the Fulbright, and when I learned about the distributed computing and robotics at the University of Tromsø, I knew that was where I wanted to go.

Q: What is your best advice for young women who are interested in science and mathematics?
If you are interested in a subject, go for it; don't let your gender get in the way. Be yourself in all things.

Q: Who do you admire?
Nicholas Copernicus for his persistence despite great opposition; the 51st Highland Division of 1940 for their bravery and resolve; [physicist] Richard Feynman for his ability to come at a problem from many different angles.

Q: Is it true that you play the bagpipes?
My family has a kilt and set of pipes that my great-grandfather purchased in Scotland over 100 years ago, and that set of pipes caught my interest when I was 12. I joined the Catamount Pipe Band shortly after I began playing a full set of Highland pipes. In high school I played in competitions and parades with the band. Now I play mostly for fun, when the weather is nice enough for me to be outside.

Carole Leigh Engblom is editor of *St. Olaf Magazine.*