



## Minnesota Teenager Wins IEEE Presidents' Scholarship

by Lynn Murison, IEEE Staff Contributor

For his project designed to ease traffic jams, an 18-year-old Minnesota, USA, student won the IEEE Presidents' Scholarship, the largest single award in the Special Awards Category at the Intel International Science and Engineering Fair. The event was held on 16 May in Louisville, Kentucky, USA.

James J. Jefferson from Winona, Minnesota, won the scholarship, funded by the IEEE Foundation, for his project, "Automatic Packet Reporting System (APRS): Building a Large-Scale Geospatial Database." He collected and cataloged the APRS Internet stream into a relational database. His technology has several applications, including rerouting emergency or hazardous-materials vehicles around traffic problems, improving highway design and reducing the cost of deploying cellular telephone infrastructure.

"This project is based on my ham radio experience," Jefferson said. "This device is in my truck and reports data as I drive." Jefferson did his original research without a mentor or funding.

A team of judges from the IEEE Lexington and Louisville, Kentucky, Sections, led by members Rachel Wilson and Steve Bryant, reviewed more than 1,200 projects entered from 39 countries to find those that best "demonstrated an understanding of electrical engineering, information technology or other IEEE fields of interest."

"Observing the excitement and enthusiasm of hundreds of young people at the Intel Special Awards Ceremony was rewarding," said IEEE Foundation President Emerson Pugh. "I was especially pleased that the IEEE Foundation had an opportunity to help support James Jefferson's college education."

For his project, Jefferson concentrated on the Los Angeles freeway system. Because the data is reported several ways, he wrote a program that translated the information into a common format. He developed software to analyze the vehicle position data and wrote another program to search digital maps for the distance from the vehicles to the nearest road to offer options to drivers caught in traffic jams. Jefferson wrote approximately 10,000 lines of computer source code for this project.

His software collects more than 600,000 data points a day. To analyze the information, a friend helped him locate space for a series of computers he linked together called a Beowulf cluster.

Later this year, he will major in computer science at Iowa State University at Ames. He will continue with his project, investigating the use of neural networks to detect road anomalies. Jefferson also received prizes from the IEEE Computer Society, the Intel Foundation and the Society of Exploration Geophysicists.

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## IEEE Section Meeting

Mike Cowlshaw, IBM Fellow  
IBM Warwick, England

### Decimal Floating-Point – The Path to Hardware

Monday, September 23, 6:30 pm  
Mayo Medical Sciences Building  
(321 3rd Avenue SW, Rochester)

⇒ Pizza at 6:30; Meeting at 7:00 ⇐

*Most data in commercial and financial applications are decimal, and floating-point decimal is increasingly important to commerce as products and applications become ever more complex.*

*IBM has now stated its intention to add decimal floating-point hardware to future mainstream systems. The details are the subject of an open discussion with Intel, Sun, HP, and AMD, and will be submitted to the IEEE 754R committee later this year.*

*In this talk, Mike will cover:*

- *the background of decimal and binary arithmetic*
- *why decimal arithmetic is increasingly important (and where binary floating-point cannot be used)*
- *why hardware support is necessary*
- *the proposed decimal floating-point formats*

*Mike joined IBM in 1974, after earning a BSc in Electronic Engineering at the University of Birmingham. During his career at IBM he has taken on a variety of assignments, most recently working on new decimal arithmetic packages (including IBM's BigDecimal class for Java and the decNumber C library) and on encodings for decimal hardware representations. He is the author of the Standard Decimal Arithmetic specifications and is the Specification Lead for decimal arithmetic enhancements in Java. He is active in the work of a number of standards organizations, including ECMA, ISO, ANSI, IEEE, and W3C.*

*A founding member of the IBM Academy of Technology, Mike has received many IBM awards, including a Corporate Award for outstanding technical innovation. In 1990 he was named an IBM Fellow, which allows him to work on projects of his own choosing. Mike was elected Fellow of the Institution of Electrical Engineers in 1997, Fellow of the Royal Academy of Engineering in 1999, and Fellow of the British Computer Society in 1999. He is a Visiting Professor in the Department of Computer Science at the University of Warwick.*

## Nominees & Volunteers Needed

IEEE Southern Minnesota Section officers will be elected for the 2003 term at our November section meeting. The following four officers will be elected: chair, vice chair, secretary, treasurer.

If you are an IEEE member in good standing, and if you would like to run for one of these offices – or to nominate someone else – please contact section chair Rob Harveland. We are also actively looking for volunteers to serve on various committees.

### **Ron Jensen Is Candidate for IEEE Region 4 Director**

A candidate on your national IEEE ballot is local longtime member and officer of the IEEE Southern Minnesota section. Ron Jensen, an IBM manager, has served as chair of our section, and he is the current membership chair. The other candidate is Satyendra N. Basu, a systems engineer for Detroit Edison. For more information, visit [www.ieee.org/organizations/corporate/reg4.html](http://www.ieee.org/organizations/corporate/reg4.html).

## Project Management Institute OutReach Program

The Minnesota chapter of the Project Management Institute will be sponsoring an OutReach program in Rochester on September 26. Included in the program will be an educational session on Project Management Fundamentals, followed by dinner and an evening program covering large-scale projects.

In addition to the educational session, attendees will have the opportunity to take advantage of networking time with various specific interest groups, including healthcare, information technology, and services. Project managers interested in improving their project management skills should strongly consider attending this event.

The fee for the event is \$40 (\$50 after September 12). Register at [www.ticketworks.com](http://www.ticketworks.com). See the PMI website ([www.pmi-mn.org](http://www.pmi-mn.org)) for more information.



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