

# **Travel Support for ACM SIGCOMM'97 Conference**

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## **Project Summary**

The 1997 ACM SIGCOMM Conference on Communications Architectures, Protocols and Applications will be held in Nice, France, from September 16—18, 1997. This conference is the premier technical meeting that examines the state-of-the-art in computer networks and communications. This proposal requests funding to assist ten United States-based graduate students in attending this meeting. Participation in conferences such as Sigcomm is an extremely important part of the graduate school experience, providing the opportunity to interact with more senior researchers and be exposed to leading edge work in the field. The support requested in this proposal will enable the participation of students who would otherwise be unable to attend SIGCOMM'97.

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# Project Description

## 1. Results of Prior NSF Support

### NSF-MIP-9502669 – A Systematic Approach to the Design of Cost-Effective, High Performance Switching Architectures

Careers Award

Period and Amount: 1995 – 1998, \$131,479

PI: *Ellen W. Zegura*

A number of issues are being considered in the area of high performance and low cost switching networks. Examples include routing algorithms for switching networks with low expansion ratio; efficient simulation of large topologies of switches; and the addition of user-controlled functionality to enhance performance in an active network. Thus far, a total of seven papers have been published or are under review based on this work. Three PhD students, one master's student and one undergraduate have participated in the work.

1. Zegura, E. W. "Evaluating Blocking Probability in Generalized Connectors." *ACM/IEEE Transactions on Networking*, August 1995.
2. Park, W.-B., Owen, H. L., Zegura, E. W. "Sonet/SDH Multicast Routing Algorithms in Symmetrical Three-Stage Networks." *ICC '95*, Seattle, WA.
3. Park, W.-B., Owen, H. L., Zegura, E. W. "Connection Request Model for Sonet/SDH Switch Evaluation." *ICC '96*, Dallas, TX.
4. Calvert, K. L., Zegura, E. W., Bhattacharjee S. "Tera-Op Networking: Local Adaptation to Congestion." Gigabit Networking Workshop '96, San Francisco, CA, March 1996.
5. Bhattacharjee, S., Calvert, K. L., Zegura, E. W. "An Architecture for Active Networking." *IFIP High Performance Networking '97*.
6. Park, W.-B., Owen, H., Zegura, E. W. "SONET/SDH Traffic Generation Models." Accepted for publication in *European Transactions on Telecommunications*, M. Decina, editor-in-chief, March 1996.
7. Hao, F., Wilson, K., Fujimoto, R., Zegura, E. "Logical Process Size in Parallel ATM Simulations." *Winter Simulation Conference '96*.

## 2. The International SIGCOMM Conference

SIGCOMM is the special interest group on data communications of the Association for Computing Machinery (ACM). The purpose of the group is to provide a forum for the discussion of issues in the fields of data communications and computer networks. SIGCOMM was founded in 1969 and has over 4000 members, including about 400 students <sup>1</sup>. Along with the IEEE Communications Society, SIGCOMM is one of the top two professional societies in data communications. In conjunction with the IEEE Communications Society and the IEEE Computer Society, ACM SIGCOMM publishes the IEEE/ACM Transactions on Networking, the top archival journal for state-of-the-art and practical applications of communication networks. ACM SIGCOMM also publishes the Computer Communications Review, which emphasizes quick publication of interesting work, including work in progress.

The annual ACM SIGCOMM conference is held in Europe once every three years, and in North America during the alternate years. The meetings have been very successful, attracting 300 to 400 participants in the last two years, primarily from North America. Approximately 20-25% of participants at recent meetings have been students. The 1997 SIGCOMM conference will be held in Nice, France, from September 16–18, 1997. The Call for Papers, which includes the program committee membership, is attached. The proceedings of the meeting will be published by ACM, with a projected circulation of over 5000 copies <sup>2</sup>.

The SIGCOMM conference is the premier international conference for examining the state-of-the-art and identifying future directions in computer networking. The quality of the presentations in recent years has been extremely high. For the 1997 conference, only 24 out of 200+ papers were accepted, for an acceptance rate of under 12%. The papers in SIGCOMM generally represent a large percentage of the top papers in data communication each year. Quite often, it is the initial forum at which *fundamental advances in the area of networking, communications, protocols and architectural concepts* are reported.

As an example of the quality of presentations, the paper entitled “On the Self-Similarity of Ethernet Traffic” by Leland, Taqqu, Willinger and Wilson, SIGCOMM ’93, has had tremendous impact on the field of traffic modeling and performance evaluation of a wide variety of networking and communications designs. The journal version of this work later appeared in IEEE/ACM Transactions on Networking and won the annual award for the best publication in any IEEE journal.

The subject areas in the SIGCOMM’97 program include:

- Fast routers

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<sup>1</sup><http://www.acm.org/sigcomm/membership.html>

<sup>2</sup>Statistics on conference participation and circulation provided by Pat McCarren, ACM.

- Wireless networks
- Novel architectures
- Multicast
- Web and TCP performance
- Active networking
- Realtime
- Performance measurement

The conference will consist of technical paper presentations over a three-day period. The final program and other information about the conference can be found at <http://www.acm.org/sigcomm/sigcomm97/>.

### **3. Request for Travel Support**

To help increase the representation and participation of United States-based graduate students in this symposium, support from NSF is requested to help cover the expenses for ten U.S.-based graduate students. The travel award program specifically targets graduate students, since they are an important segment of the research community. Further, they often have limited sources of funds for travel to conferences.

The amount of support provided to each student will be \$1,400 or the actual documented amount of expenses, whichever is less. This amount is intended to cover the student's travel (economy airfare), food and lodging for four nights. We expect the breakdown of costs to be approximately \$1,000 for airfare, \$75/night for lodging and \$25/day for food. We have received email commitment from Jon Crowcroft (Chairman of SIGCOMM) and Pat McCarren (Associate Director, Office of SIG Services, ACM) that SIGCOMM will cover the student registration fee for award recipients. Each student will be expected to cover expenses in excess of the fixed amount from other funds. In the event that a student does not require the full \$1,400, the remainder will be used to reimburse the SIGCOMM for the registration fee or returned to NSF.

Support from NSF is critical to increasing the number of graduate students who can attend SIGCOMM. Many sources of funding (e.g., university, government and industry) place restrictions on the use of funds for foreign travel. Further, the cost of traveling internationally prohibits most students from attending without substantial financial assistance. A travel award program such as this one can help bring the level of participation by students closer to the typical participation at recent North American meetings.

## 4. Selection Process

The recipients of the travel awards will be decided by a committee chaired by Professor Ellen Zegura (Georgia Tech), and including Dr. Karen Sollins (MIT) and Professor Jose Garcia-Luna-Aceves (University of California, Santa Cruz). Dr. Sollins and Professor Garcia-Luna-Aceves are both members of the SIGCOMM'97 program committee. Professor Ellen Zegura has been previously involved in the evaluation of student applicants for the CRA Distributed Mentor Project; she also supervises a student who received a travel award last year. Short biographies of the committee members are attached.

### 4.1. Publicity

To ensure an equal opportunity for all interested individuals to apply for the travel funds, the program will be advertised in several ways, including an announcement on the SIGCOMM'97 web page and an announcement on email mailing lists. Given the timing constraints, it is not feasible to advertise in publications.

### 4.2. Applications

An application for a travel award will consist of the student's vita, a letter from the student and a letter from the student's advisor. The letter from the student should indicate why the student believes he or she would benefit from attending ACM SIGCOMM. The student's letter should include

- a brief summary of research interests and accomplishments to date;
- a description of areas reflected in SIGCOMM program that would impact the student's research; and
- why the conference attendance is important to this student.

In addition, the student's advisor should send a letter of recommendation to the committee, indicating why the advisor believes the student would benefit from attending the conference and confirming that the student is a Ph.D. candidate in good standing. This letter should include (1) the advisor's view on the suitability of the SIGCOMM program material to the student's research area; (2) ways this particular student would benefit from attendance at the conference; and (3) the advisor's opinion about the strengths and potential contributions of the student.

### **4.3. Decision Criteria and Procedure**

A deadline of July 1, 1997, will be set of the receipt of applications. The applications will be sent to Ellen Zegura, and then distributed to the other committee members. Each member will have two weeks to independently rank the applications. A conference call will be arranged to make the final decisions, prior to the target notification date of July 21, 1997. Recipients will be required to accept the award by August 1, 1997, so that alternates can be notified in the event that a recipient declines.

A goal of the travel grant program is to encourage participation in the SIGCOMM conference by students that would normally find it difficult to attend. While student authors of papers to be presented at SIGCOMM may apply, the committee strongly prefers to give grants to students who are not paper authors. Other criteria will include evidence of a serious interest in networking, as demonstrated by coursework and/or project experience. Women and minorities will be given preference when other qualifications are similar.

## **5. Reporting**

A final report will be submitted to NSF containing information on the number and demographics of the applicants, the rankings by the committee members and the final selection.

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## Bibliographic Sketches

**Dr. Ellen W. Zegura** received the B.S. degree in Computer Science (1987), the B.S. degree in Electrical Engineering (1987), the M.S. degree in Computer Science (1990) and the D.Sc. in Computer Science (1993) all from Washington University, St. Louis, Missouri. She has been a faculty member of the College of Computing at Georgia Tech since 1993. Her current interest is in wide-area networking, including active networking, routing, addressing and available bit rate service. Her work is sponsored by DARPA, NSF and Hitachi Telecom, USA.

Dr. Zegura is on the editorial board of the Journal of High Speed Networks. She has served on the program committee for Infocom every year since 1993. She is publicity chair for IEEE ICNP '97. In the spring of 1996, Dr. Zegura served on the selection committee for the CRA Distributed Mentor Program. This program pairs female faculty with female undergraduates for a summer research internship. Dr. Zegura has also served as a mentor for this program during three of the last four years. She is a member of the ACM and the IEEE.

**Dr. Karen Sollins** received a BA in Mathematics from Swarthmore College, and PhD in Computer Science from MIT and has since worked at the MIT Laboratory for Computer Science as a Research Scientist. The focus of her research has been network services and support for distributed systems. Her doctoral thesis was on distributed naming. She has published work on both naming/directory services and security infrastructure. Her current research project, The Information Mesh, proposes a global information architecture designed specifically to meet the requirements of longevity, mobility, and evolvability. She was a key member of the CSTB study on Crisis Management, the requirements for support of Crisis Management, and the broader applicability of those requirements to other domains. She currently is an active member of the URI/URN activities in the IETF, both participating and writing documents and chairs an IRTF research group on an Internet Information Architecture. She is a longtime member of the ACM and IEEE.

**Dr. Garcia-Luna-Aceves** is an Associate Professor of Computer Engineering at the University of California, Santa Cruz (UCSC). Prior to joining UCSC in 1993, he was a Center Director at SRI International (SRI) in Menlo Park, California. He first joined SRI as an SRI International Fellow in 1982. His current research interest is the analysis and design of algorithms and protocols for computer communication. At UCSC, he leads a number of research projects sponsored by DARPA and ONR that focus on wireless networks and internetworking.

Dr. Garcia-Luna-Aceves has published more than 100 technical papers on computer communication, and is on the editorial board of the ACM Multimedia Systems Journal and the Journal of High Speed Networks. He has been Chair of the ACM special interest group on multimedia, General Chair of the first ACM conference on multimedia: ACM MULTIMEDIA '93, Program Chair of the IEEE MULTIMEDIA

'92 Workshop, General Chair of the ACM SIGCOMM '88 Symposium, and Program Chair of the ACM SIGCOMM '87 Workshop and the ACM SIGCOMM '86 Symposium. He has also been program committee member for numerous IFIP 6.5, ACM, IEEE, and SPIE conferences on computer communication. He received the SRI International Exceptional-Achievement Award in 1985 for his work on multimedia communications, and again in 1989 for his work on adaptive routing algorithms. He is a member of the ACM and the IEEE.