Student Travel Support for ACM SIGCOMM 2000 Conference

Brian Neil Levine
Department of Computer Science
University of Massachusetts, Amherst

Project Summary

The 2000 ACM SIGCOMM Conference on Communications Architectures, Protocols and Applications will be held in Stockholm, Sweden, from August 28–September 1, 2000. 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 18 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 to 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 ACM SIGCOMM 2000.

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Project Description

1 Results of Prior NSF Support

Brian Neil Levine Joined the University of Massachusetts faculty in September 1999. Having received his Ph.D. in Computer Engineering from the University of California, Santa Cruz in June 1999, he has only recently become eligible for NFS funding as a principal investigator.

However, Ellen Zegura, a member of the Student Travel Grant committee has received NFS support in the past.

1. Ellen Zegura and M. Ammar, Principal Investigator, "Server Selection in Emerging Information Delivery Environments", NSF, October 1999-October 2002, $399,500.

2. Ellen Zegura, Principal Investigator, "A Systematic Approach to the Design of Cost-Effective, High Performance Switching Architectures", NSF Careers Award, May 1995-May 1998, $131,479.

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[1]. 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 *ACM 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 2000 SIGCOMM conference will be held in Stockholm, Sweden from August 28–September 1, 2000. The Call for Papers, which includes the program committee membership, is attached. The proceedings of the meeting will be published by the ACM, with a projected circulation of over 5000 copies[2].

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 1998 conference, only 26 out of 218 papers were accepted, for an acceptance rate of under 12%. For the 1999 conference 190 papers were submitted and 24 accepted, for an acceptance rate of under 13%. The papers in SIGCOMM consistently 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. Similarly, the journal-version of a paper written by Nonnenmacher, Biersack, Towsley entitled, "Parity-Based Loss Recovery for Reliable Multicast Transmission" that appeared SIGCOMM '97 won the William R. Bennett Prize for the Best Original Paper published in the IEEE/ACM Transactions on Networking in 1998.

The areas of interest listed in the SIGCOMM call for papers include

- Distributed application networking infrastructure.
- Distributed common application services, middleware protocols, and signaling.

[1] http://www.acm.org/sigcomm/membership.html

[2] Statistics on conference participation and circulation provided by Pat McCarren.

- Routing, switching, and addressing.
- Resource sharing, quality of service, multimedia networks, and OS support.
- Multimedia networking.
- Networking aspects of the WWW.
- Heterogeneous internetworking, large-scale networks.
- Network management.
- Active network architectures and protocols.
- Important experimental results from operational networks and lessons learned from prototype implementations.
- Wireless networking and support for nomadic computing.
- Analysis and design of computer network architectures and algorithms.

The conference will consist of technical paper presentations over a three-day period. Preliminary information about the conference can be found at http://www-net.cs.umass.edu/sigcomm2000. Information about past conferences 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 18 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 $800 for airfare, $125/night for lodging and $25/day for food. We have received email commitment from Craig Partridge (Chairman of SIGCOMM) 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 SIGCOMM for the registration fee or will be 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 high cost of international travel 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 Brian Neil Levine (UMass), and including Professor Ellen Zegura (Georgia Tech), and Professor Roch Guerin (UPenn). Professor Zegura and Professor Guerin are members of the SIGCOMM 2000 program committee. Professor Ellen Zegura has previously chaired the student travel grant committee for SIGCOMM'97. 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 2000 web page and an announcement on email mailing lists. Given budget constraints, it is not feasible to advertise in publications other than as a brief message in part of a larger announcement of the entire conference.

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 June 1, 2000, will be set of the receipt of applications. The applications will be submitted online and sent to Brian Levine, 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 June 20, 2000. Recipients will be required to accept the award by June 30, 2000, so

that alternates can be notified in the event that a recipient declines. The early notification will assist in finding cheaper airline tickets.

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. SIGCOMM encourages participation of women and under-represented minorities.

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. Brian Neil Levine

Brian Neil Levine received his B.S. in Applied Mathematics & Computer Science from the State University of New York at Albany in 1994. He received his M.S. and Ph.D. in Computer Engineering from the University of California, Santa Cruz in 1996 and 1999, respectively. He recently joined the University of Massachusetts, Amherst Department of Computer Science faculty in September 1999. Dr. Levine's current research interests lie in network security and group communication, including multicasting, anycasting, and anonymous routing.

Dr. Levine has served on the program committees for the first two ACM International Workshops on Network Group Communication (ACM NGC'99 and ACM NGC 2000) and the 10th IEEE International Workshop on Network and Operating System Support for Digital Audio and Video (IEEE NOSSDAV 2000). He is Student Travel Grant chair for ACM SIGCOMM 2000. He is a member of Phi Beta Kappa and the ACM.

Dr. Ellen W. Zegura

Ellen 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 server selection, active networking, and topology modeling. Her work is sponsored by DARPA and NSF.

Dr. Zegura is an associate Editor for IEEE/ACM Transactions on Networking. She has served on the program committee for Infocom since 1993. She has served on the program committee for SIGCOMM 1999 and SIGCOMM 2000, was chair of the Student Travel Grant Committee for SIGCOMM 1997, and was Tutorial Chair for SIGCOMM 1999. She received the Junior Faculty Research Award at the Georgia Tech College of Computing in May 1997. In the spring of 1996 and 2000, 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 four of the last six years. She is a member of the ACM and the IEEE.

Dr. Roch Guérin

Dr. Guerin is the Alfred Fitler Moore Professor of Telecommunications Networks and the University of Pennsylvania Department of Electrical Engineering. Since 1999 he has served as director of the Telecommunications and Networking Professional Masters Program. He received his M.S. and Ph.D. in Electrical Engineering from the California Institute of Technology, Pasadena in 1984 and 1986, respectively. In 1983, he received a Diplôme d'Ingénieur from the École Natle. Sup. des Télécomm., in Paris, France.

His current research interests include performance of integrated networks, policy and access control to network services, and high-performance distributed applications.

Dr. Guerin has served on numerous program committees including: the INFOCOM program committee in 1995–1997 and 2000, as well as being the General Chair in 1998; the

SIGCOMM program committee from 1996–2000; General Chair of IWS'99; Technical Co-Chair 1st joint IEEE-POPOV Internet conference (1999). He was chair of IEEE Technical Committee on Computer Communications (1997–1999). He is an editor for ACM CCR (1998–); Editor for IEEE/ACM Trans. Networking (1994–2000), Area Editor for IEEE Commun. Surveys; Editor for Journal of High-Speed Networks (1994–1996); Editor for the IEEE Trans. Commun. (1992–1993).