**William E. Naylor**

# Education

Ph. D. Computer Science, 1977, University of California, Los Angeles

Fields of Study: Computer Systems Modeling and Analysis,

Applied Mathematics and Programming Languages and Systems

Dissertation Title: "Stream Traffic Communication in Packet Switched Networks"

M. S. Computer Science, 1970, University of California, Los Angeles

A. B Mathematics, 1966, University of California, Los Angeles

**Honors Received**

Freshman Mathematics Achievement Award, Fullerton Junior College, 1962

Member of Upsilon Pi Epsilon (Computer Science National Honor Society)

# Professional experience

**Citicorp Development Center**, Los Angeles, CA
March 1983 - present

Continued work at all levels of the measurement, modeling, analysis and capacity planning of communications networks and transaction processing systems. Most recently responsible for capacity planning for our web based remote banking system.

**The Aerospace Corporation.**, El Segundo, CA
June 1982 - March 1983

As part of the newly forming Computer Science Research Group, developed and began to implement a plan including vendor selection and procurement for a LAN to provide resource sharing within the corporation.

**Transaction Technology, Inc.**, Los Angeles, CA
March 1980 - August 1982

Managed and provided technical guidance for a department responsible for estimating traffic requirements for present and future transaction processing systems and communication networks. Included capacity measurement, load measurement, data reduction, load projection, performance modeling and analysis. Interfaced with all levels of TTI management and with many levels within Citibank

**Xerox Corporation**, Woodland Hills, CA
August 1978 - March 1980

Headed a team developing analytic and simulation models for performance prediction of design alternatives of the planned Xerox Telecommunications Network (XTEN).

**Computer Science Department, School of Engineering and Applied Science, University of California**, Los Angeles, CA
November 1969 - November 1978

Participated in the development of a time sharing system for the Xerox Sigma-7. Designed and implemented the terminal handler of that system. Wrote the first instance of Telnet server for use through the ARPANET before TCP/IP was invented. Developed a set of programs for collection, reduction and analysis of data from the ARPANET IMPs. Performed many of the early performance measurements on the ARPANET. Supervised the activities of the Network Measurement Center at UCLA for one year prior to resuming study toward a Ph.D. While a student, continued to maintain the network measurement facility and consult with members of the packet satellite and packet radio groups. In July 1977, I accepted primary responsibility for technical management of the packet satellite project at UCLA. As part of the ARPA Atlantic Satellite Experiment, we studied the performance of several protocols for shared satellite communication through the use of simulation, analysis and measurement.

**Institute of Geophysics and Planetary Physics, University of California**,
Los Angeles, CA
March 1968 - November 1969

Lead programmer in charge of data reduction and analysis of OGO-5 satellite magnetometer data. Developed programs to detect and remove the effects, on the magnetic field, of on-board electrical devices. Supervised the development of a set of programs to automate the data retrieval process from a large tape library. Supervised the development of data reduction and plotting programs. Interacted with staff at the LRL for use of some unique plotting hardware.

**Systems Specialists, Inc.**, Woodland Hills, CA
November 1967 - March 1968

Continued as a consultant to Rocketdyne (see below). In addition to maintenance, I developed a BCD to floating point conversion routine to handle some special cases present in the data and not handled by the FORTRAN IV I/O routines.

**Wolf Research and Development Corporation**, Encino, CA
September 1966 - November 1967

Wrote portions of a simulation of the Marine Tactical Data System. Implemented cost accounting and budget programs. Assisted in the writing of compiler to translate descriptions of electronic schematic diagrams to machine code for the Photon 713 phototypesetting machine. Maintained several rocket engine simulation and data reduction programs as a consultant to the Data Reduction Group of the Rocketdyne Division of North American Rockwell.

**The Boeing Company**, Seattle, WA
February 1966 - September 1966

Converted programs from IBM 7094 FORTRAN II to OS/360 FORTRAN IV. Debugged and documented these programs.

## Publications

1. V. G. Cerf and W. E. Naylor, "Selected ARPA Network Measurement Experiments," *Digest of Papers COMPCON72*, IEEE, September 1972, pp. 201-204.
2. V. G. Cerf and W. E. Naylor, "Storage Considerations in Store-and-Forward Message Switching," *WESCON Technical Papers*, Session 7, IEEE, September 1972, pp. 7-3.1 - 7-3.8.
3. L Kleinrock and W. E. Naylor, "On Measured Behavior of the ARPA Network," *Conference Proceeding, National Computer Conference*, AFIPS, June 1974, pp., 767-780, reprinted in *Computer Networking*, R. P. Blanc and I. W. Cotton (eds.), IEEE Press, 1976, pp. 299-312, reprinted in *Advances in Computer Communications*, W. W. Chu (ed.), Artech House, 1977, pp. 767-780.
4. W. E. Naylor, "A Loop-Free Adaptive Routing Algorithm for Packet Switched Networks," *Proceeding of the Fourth Data Communications Symposium*, ACM, October 1975, pp. 7.9-7.14.
5. L. Kleinrock, W. E. Naylor and H. Opderbeck, "A Study of Line Overhead in the ARPANET," *Communications of the ACM*, Vol. 19, No. 1, January 1976, pp. 3-13, reprinted in *Computer Networks: A Tutorial*, M Abrams, R. Blanc and I. Cotton (eds.), IEEE Press, 1978, pp. 6.11-6.20, reprinted *in IEEE Tutorial: Distributed Systems Design*, M. P. Marian and D. F. Palmer (eds.) IEEE Press, 1979, pp. 327-337.
6. W. E. Naylor and L. Kleinrock, "On the Effects of Periodic Routing Updates in Packet Switched Networks," *Conference Record, National Telecommunications Conference*, IEEE, November 1976, pp. 16.2.1-16.2.7.
7. W. W. Chu and W. E. Naylor, "Measurements and Simulation Results of C-PODA Protocol Performance," *Conference Record, National Telecommunications Conference*, IEEE, November 1978, pp. 4.2.1-4.2.7, reprinted in *Advances in Computer Communications*, W. W. Chu (ed.), Artech House 1979, pp. 95-101.
8. W. W. Chu, M. Gerla, W. E. Naylor, S Treadwell, P Spilling, D. Mills and F. A. Aagesen, "Experimental Results on the Packet Satellite Network," *Conference Proceedings, National Telecommunications Conference*, IEEE, November 1979, pp. 45.4.1-45.4.12.
9. W. E. Naylor and L. Kleinrock, "Stream Traffic Communication in Packet Switched Networks: Destination Buffering Considerations," *IEEE Transactions on Communications*, Vol. COM-30, No. 12, December 1982, pp. 2527-2534.

## Patent

L. C. Moss, C. A. Medine and W. E. Naylor, "Home Services Delivery System with Intelligent Terminal Emulator," Appl. No. 112,178, August 25, 1993.

## Professional memberships

Association for Computing Machinery

Special Interest Groups: SIGCOMM, SIGMETRICS and SIGOPS

Institute of Electronic and Electrical Engineers

Societies: Communications and Computer

## References

Available upon request