Phyllis Fox

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Short Hills, NJ 07078
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973
May 1984

Education

M.I.T., Sc. D. (Mathematics) 1954
M.I.T., M. S. (Electrical Engineering) 1949
University of Colorado, B. S. (Electrical Engineering) 1948
Wellesley College, B. A. (Mathematics) 1944

Employment

1973-84	AT&T Bell Laboratories, Murray Hill, NJ 07974 Numerical consulting and mathematical program library development. June 1984, PORT 3 library project completed (some 100,000 lines of Fortran, and 1200 pages of documentation for over 300 subprograms (supported by 1513 subroutines modules)) 1981-3, Supervisor User Interface Group, Computer Center. 1973-81, Member of Technical Staff doing development and numerical work including benchmarking of large-scale computers.
Summer 1967	Bell Laboratories, development and installation of a program for differential equation solution. Continued at the labs on a consultant basis to July 1969.
1963-73	Newark College of Engineering (now N.J.I.T.) Professor of Computer Science (tenure granted 1972)
1960-62	Computation Center, M.I.T., Research Associate Worked in the fields of numerical analysis and artificial intelligence (wrote first LISP manual). Member of the Committee on Long-Range Computation Planning.
1958-60	School of Industrial Management, M.I.T., Research Associate Developed the simulation language DYNAMO for use in industrial dynamics.
1954-58	AEC Computing Center, Courant Institute, New York University, NY Numerical methods for the solution of pde's
1949-53	Whirlwind computer, M.I.T., Research Assistant
1944-46	General Electric Company, Schenectady, NY Operated the Differential Analyzer

Technical Societies   ACM   SIAM   IEEE

Publications

The PORT Mathematical Subroutine Library, in *Sources and Development of Mathematical Software*, Wayne R. Cowell, Ed., Prentice Hall, NJ, 1984, pp. 346-374.

Various Bell Laboratories technical memoranda on software libraries, numerical matters, benchmarking, etc.

The PORT Mathematical Subroutine Library, (with A. D. Hall and N. L. Schryer), *ACM Transactions on Mathematical Software*, Vol. 4, Number 2, June 1978.

A Comparative Study of Computer Programs for Integrating Differential Equations, *Communications of the ACM*, November 1972.

DESUB: Integration of a First-Order System of Ordinary Differential Equations, Chapter 9 of *Mathematical Software*, John Rice, Ed., Academic Press, 1971.

Safety in Car Following: A Computer Simulation, Newark College of Engineering, 1967. A monograph covering research carried out under Grant AC 00236, U.S. Dept of Health, Education, and Welfare, May 1, 1965 - April 30, 1967.

Digital Computer Simulation of Automobile Traffic, *Traffic Quarterly*, Vol. XXI, Number 1, January 1967, pp. 53-66.

Rational Approximation on Finite Point Sets, (with A. A. Goldstein, and G. Lastman), in *Approximation of Functions*, Proceedings of a symposium on the approximation of functions, General Motors Research Laboratories, Warren, Michigan, edited by Henry L. Garabedien, Elsevier Publishing Co., Amsterdam, 1965.

Glossary of Terms Frequently Used in Physics and Computers, American Institute of Physics, 1962.

LISP Programmers' Manual (first edition), M.I.T., 1961.

The Solution of Hyperbolic Partial Differential Equations by Difference Methods, in *Mathematical Methods for Digital Computers*, edited by Anthony Ralston and Herbert Wilf, John Wiley & Sons, Inc., 1960.

On the Numerical Solution of the Equations for Spherical Waves, (with Anthony Ralston), *Journal of Mathematics and Physics*, Vol. 36, No. 4, January 1958, pp. 313-328.

Report NY0-7689, AEC Computing Facility, Institute of Mathematical Sciences, New York University: a translation of the classic (1928) article by R. Courant, K. Friedrichs, and H. Lewy, On the Partial Difference Equations of Mathematical Physics, *Mathematische Annalen, Vol. 100*.

Perturbation Theory of Wave Propagation Based on the Method of Characteristics, *Journal of Mathematics and Physics*, Vol. 34, No. 3, October 1955, pp. 133-151. (doctoral dissertation)

Propagation of Shock Waves in the Generalized Roche Model, (with P. A.. Carrus, Felix Haas and Zdenek Kopal), *The Astrophysical Journal*, Vol. 113, No. 1, January 1951, pp. 193-209.

Propagation of Shock Waves in a Stellar Model with Continuous Density Distribution, (with P.A. Carrus, Felix Haas and Zdenek Kopal), *The Astrophysical Journal,* Vol. 113, No. 3, May 1951, pp. 496-518.

The Solution of Power-Network Problems on Large-Scale Digital Computers, M.I.T. Servomechanisms Laboratory Report R-169. (master's thesis) June 1949.

66 Olad Short Hills Road

Short Hills, N. J. 07078

January 14,1974

Mrs. John J. Archer

57 Elmwood Avenue

Chatham, New Jersey 07928

Dear Kay,

Please excuse my delinquency in this matter of the auto-
biography. Since I don't remember the exact specifications,I
have included a vitae along with the rather hastily written
and asinine biography. I hope these things are edited liberally!

Very best,

Phyl

Phyllis Fox - Autobiography

In 1944 I went to work for the General Electric Company
in Schenectady, New York. I spent the first year running a
hand calculator and the next running a differential analyzer.
The latter was an early sort of analogue computer full of
shafts and gears. Then in 1948 all the engineers started to come
back to G.E. and I was demoted, at least psychologiaally,
back to an "engineering assistant". So I decided to become
an engineer also.

I went to "engine" school at the University of Colorado
and in 1948 graduated as an electrical engineer. Then I had
the good luck to get an assistantship at M.I.T. and went there
for a master's degree in electrical engineering, which I got in
June of 1949. At that time M.I.T. was starting to build one of
the first large-scale electronic computers. (It was called the
"Whirlwind" computer.) I did a master's project related to it
 - becoming, in the process permanently devoted to the world of
computers.

M.I.T. was such a marvelous place that I stayed on, working
at Whirlwind and working toward a doctorate in mathematics,

which I finally got in 1954.

The next job was at the Atomic Energy Commission's Computing Facility at the Courant Institute of Mathematical Sciences at New York University. I worked there for four years, living in Greenwich Village.

In 1957 George Sternlieb and I were married. We decided to go "academic", which meant that George had to go back for his doctorate at the Harvard Business School where he had gotten his M.B.A.

While George was working on his degree I worked at M.I.T., first for Professor Jay Forrester, writing the computer program "Dynamo", which was and is used in his industrial and urban dynamics work, and then with the artificial intelligence group working in the computer center.

During this time our sons David and Benjamin were born (1960 and 1962).

While he was writing his dissertation, George was a fellow at the Harvard-M.I.T. Joint Center for Urban Studies, and when he finished, he got a job as Associate Professor at Rutgers University in New Jersey.

For a while I taught in the Ford Foundation program for retraining women in mathematics, and then I got a job at Newark College of Engineering, first in the mathematics department,

and then in the new department of computer science. I became a professor, and in 1972 was granted tenure.

It seemed time to shift activities (I was 50!), so I resigned from NCE and got a job at Bell Laboratories in Murray Hill developing compuateprpgogmam library for numerical computation. I started this past Septembbep and am enjoying the project and the surroundings tremendously.

George has written several books and is now a full professor and Director of the Center for Urban Policy Research at Rutgers.

The boys, now 11 and 13, are bedecked with braces (which interfere with the trumpet) and soccer scars.

We all play tennis from time to time, and George has a greenhousejdevoted to orchids. I work away at the harpsichord which I've been studying for several years. Also last summer - a last summer of academic freedom - I learned, or started to learn, to play the organ, which I find challenging, mostly to the feet.