

RÉSUMÉ

Paul E. Pfeiffer

Professor Emeritus
Computational and Applied Mathematics
Rice University
October 2003

Home address:

4508 Teas Street
Bellaire, Texas 77401-4223
Phone 713-664-1116
E-mail: perhp@earthlink.net

Office address:

Rice University
Department of Computational & Applied Mathematics — MS 134
6100 Main Street
Houston, Texas 77005-1892
Phone 713-348-5665
E-mail: pep@caam.rice.edu
Fax: 713-348 5318

Date of birth: September 9, 1917

Place: Newark, Ohio

Marital status: Married to Ruth Harkey Pfeiffer;

Four adult offspring

Education:

Bachelor of Science in Electrical Engineering, Rice, 1938
Bachelor of Divinity, Perkins School of Theology, SMU, 1943
Master of Science in Electrical Engineering, Rice, 1948
Doctor of Philosophy (Mathematics), Rice, 1952

Faculty and administrative positions (all at Rice):

| | |
|---------------|---|
| 1998— | Professor Emeritus |
| 1959-1998 | Professor |
| 1955-59 | Associate Professor |
| 1952-55 | Assistant Professor |
| 1947-52 | Instructor |
| 1991 (Fall) | Interim Director, Managerial Studies |
| 1990 (Fall) | Interim Director, Managerial Studies |
| 1981 (Spring) | Interim Master, Brown College |
| 1974-75 | Chairman, Department of Mathematical Sciences |
| 1965-69 | Chairman, Committee on Applied Mathematics & Systems Research |
| 1965-69 | Dean of Students |
| 1964 (Spring) | Interim Master, Wiess College |
| 1960-63 | Chairman, Department of Electrical Engineering |
| 1970-present | Associate, Brown College |
| 1957-65 | Associate, Wiess College |

Various activities in academic and student affairs

| | |
|-----------|--|
| 1988-89 | Chairman of Ad Hoc Committee on the Judicial Process at Rice |
| 1986-88 | University Review Board (Chairman 1987-88) |
| 1982-84 | Committee on Admissions |
| 1977-84 | Danforth Associate |
| 1977-78 | Faculty Adviser to Student Senate |
| 1976-80 | Member University Council (and Faculty Council) |
| 1972-80 | University Review Board (Chairman 1976-80) |
| 1970-71 | Committee on University Welfare |
| 1970-72 | Faculty Council |
| 1965-71 | Committee on Undergraduate Affairs |
| 1969-71 | Faculty Adviser to Student Senate |
| 1970-1998 | Undergraduate Program Adviser, Dept. of Mathematical Sciences (Now Computational and Applied Mathematics) |
| 1969-71 | Coordinator, Rice Tutorial Program for Freshmen (Had primary responsibility for setting up this program). |
| 1965-69 | Chairman of Committee on Applied Mathematics and Systems Research This group administered an NSF University Science Development Grant for interdisciplinary work in certain aspects of systems theory. Also, it was instrumental in the formation of the Department of Mathematical Sciences (now Computational and Applied Mathematics). |

Teaching and research interests

Teaching has ranged over circuit theory, linear systems analysis, logic and switching circuits, statistical communication theory, and information theory, as well as a variety of courses in the mathematical sciences. Since 1968, primary attention has been given to teaching courses in probability at various levels, as well as instructing in the freshman calculus program (1968–1988)

Research interests have tracked teaching interests: electronic circuits, control systems, analog computers, switching circuits, coding theory, applied probability and random processes. Areas of application of probability are diverse and increasingly important.

Recent research interests

In recent years, a primary objective has been the reformulation of certain advanced topics in probability to make them available as working tools for both undergraduate and graduate students interested in applications.

Beginning a project to develop introductory probability material for teachers of high school mathematics—and perhaps for honor students in high school mathematics.

Professional society memberships

- American Mathematical Society (1951-1998)
- Institute of Electrical and Electronic Engineers (1952)
- Mathematical Association of America (1958-1998)
- Society for Industrial and Applied Mathematics (1968)
- Institute of Mathematical Statistics (1974-1998)

Honors and awards

Society of Sigma Xi, Rice (1940)
M Award (Student service award), SMU (1943)
Tau Beta Pi, Rice (1948)
Rice University Service Award (1966)
Rice University Mentor Recognition Award (1971)
Brown College Award for Teaching Excellence in the Sciences (1974 and 1981)
The Rice Student Association Lifetime Appreciation Award (1989)
The Association of Rice Alumni 1992 Meritorious Service Award
The Association of Rice Alumni 1998 Gold Medal Award

Journal Publications

1. "Equivalence of Totally Finite Measures on Infinite Product Spaces," *Annals of Mathematics*, 56 (Nov. 1952): 520-536. [Based on Ph.D. thesis]
2. (with C.R. Wischmeyer) "Direct Reading of Phase Angles on an Oscilloscope," *Review of Scientific Instruments*, 25 (Jan. 1954): 41-42.
3. "The Maximum Response Ratio of Linear Systems," *Transactions of the AIEE*, Part Two, Applications and Industry (Jan. 1955).
4. "Unstable Linear Systems and the Minimum Phase Condition," *Journal of the Franklin Institute*, 265 (1958): 291-301.
5. "The Operational Amplifier as a Laboratory Tool," *Transactions of the AIEE*, Part One, (Jan. 1959): 947-952.
6. "A Four-Quadrant Multiplier Using Triangular Waves, Diodes, Resistors, and Operational Amplifiers," *IRE Transactions on Electronic Computers*, EC-8, 2 (1959): 222-227.
7. (with Wai-hung Ng) "Minimum-Hamming-Distance Decoding of Single-Generator Binary Convolutional Codes," *Information and Control*, 13 (1968): 295-315.
8. (with R.A. Naden, J V. Leeds, Jr.) "Use of the Reciprocity Theorem and Mapping Theorems in Locating Anomalous Air Pollution Sources," *IEEE Transactions on Systems, Man, and Cybernetics*, SMC-3 2 (1973): 147-154.
9. (with D.A. Schum) "Observer Reliability and Human Inference," *IEEE Transactions on Reliability*, Special Issue on Human Reliability, R-22 3 (1973): 170-176.
10. (with D.A. Schum) "A Likelihood Ratio Approach to Classification Problems Using Discrete Data," *Organizational Behavior and Human Performance*, 19 (1977): 207-225.

Books and Monographs

1. *Linear Systems Analysis*, (New York: McGraw-Hill Book Company, 1961) pp. xvii, 538.
2. *Sets, Events, and Switching*, (New York: McGraw-Hill Book Company, 1964) pp. xiii, 131.
3. *Concepts of Probability Theory*, (New York: McGraw-Hill Book Company, 1965) pp. xiii, 399.
4. *Introduction to Applied Probability*, (with David Schum, New York: Academic Press, 1973) pp. xv, 403.
5. *Concepts of Probability Theory*, (New York: Dover Publications, Inc., 1978) pp.xiii, 408. Revised and corrected reprint.
6. *Conditional Independence in Applied Probability*, (Newton, Mass.: UMAP, 1978) pp. vi, 150.
7. *Probability for Applications* (Springer-Verlag New York, 1990) pp xvi + 674.
8. *Basic Probability Topics Using MATLAB* (PWS Publishing Co., Boston, 1995)

Conference Proceedings and Reports

1. (with Shu Lin) "A Sequential Decoding System Utilizing Distance Properties of Convolutional Codes," *Conference Record, First IEEE Annual Communications Convention*, June 1965: 575.

Discussions and Reviews

1. Discussion of Graham and Lathrop: "The Influence of Time Scale and Gain on Criteria for Servomechanisms Performance," *Transactions of the IEEE*, Part Two, Applications and Industry (July, 1954).
2. Digest of "The Maximum Response Ratio of Linear Systems," *Electrical Engineering*, 73 (Dec. 1954).
3. Review of Samuel H. Caldwell, "Switching Circuits and Logical Design," (New York: John Wiley & Sons, 1958) *Review of Scientific Instruments*, 29 (1958): 901-902.

Technical Reports

1. Masc TR 87-19, July 1987: A Computational Note on Markov Decision Processes without Discounting (with J.E. Dennis, Jr.)