

CURRICULUM VITA

BAKER A. MITCHELL, JR.

Wilmington, N. C. 28405
910.256-4833

Born Columbia, Tennessee, July 14, 1940

Degrees 1962 B. S. Electrical Engineering Duke University, Durham, NC
1964 M. S. Electrical Engineering Univ. of Arizona, Tucson, AZ

Experience: 1999 – Present

Founder, President, and Trustee:

The Roger Bacon Academy ~ Charter Day School

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In 1989 Mr. Mitchell began a pursuit of developing a more effective way of educating school children. The pursuit became a quest which led to years of observation, investigation, research and analysis of the best, and worst, practices in education. Ultimately, this pursuit led to considerable personal commitment to and investment in a comprehensive educational model which incorporates traditional classroom instruction using scientifically-validated behavioral programs, curriculum and teaching methods.

1989 - 1992 Consultant

1968 - 1989

Entrepreneur: Founder, President, and Owner

Community Health Computing, Inc., Houston, TX

In 1968, Mr. Mitchell founded Community Health Computing, Inc. Until 1986, Mr. Mitchell was the majority shareholder and President of CHC. He hired a President in 1986 and became Chairman of the Board where he remained until 1989. From 1973 to 1989, CHC grew from three employees and no revenue to over 200 employees with revenue of more than \$26 million annually. Until 1989, all growth was financed internally.

- CHC designed, sold, installed, and maintained computer systems for large hospital pathology and radiology laboratories and had clients throughout the US and Great Britain. Clients included major teaching and research hospitals such as the Mayo Clinic, Grady Hospital in Atlanta, Vanderbilt Hospital in Nashville, New York Hospital, Sloan-Kettering, St. Lukes in Houston, and many others.
- In 1989 he sold the majority of his stock to a group of outside investors for cash, notes, and other considerations and retired from the business. He remained on the Board of Directors until the company went public in 1993.

Since 1989 Mr. Mitchell has pursued his interests in teaching and curricula development which culminated with the founding of The Roger Bacon Academy in 1999.

1965-1973

Chief, Section of Bioengineering
The Univ. of Texas M.D. Anderson Cancer Center, Houston, TX

TEACHING AND ACADEMIC APPOINTMENTS

University of Arizona	1962-1964: Research Associate
Hybrid Computation Lab	1963-1964: Teaching Assistant
Baylor College of Medicine	1967-1973: Adjunct Instructor in Biomathematics
Univ. of Texas Graduate School of Biomedical Sciences	1967-1973: Instructor in Biomathematics
The University of Texas	1965-1971: Instructor in Biomathematics
M. D. Anderson Cancer Center	1971-1973: Associate Biomathematician

PAST SCIENTIFIC AND PROFESSIONAL ORGANIZATIONS

American Radio Relay League
Association for Computing Machinery (Chairman, Houston Chapter, 1969 - 1970)
Institute of Electrical and Electronics Engineers
National Association of Scholars
Simulation Councils, Inc. (Vice-Chairman, South Central Region, 1969-1970)

COMMUNITY ACTIVITIES

Head Coach: FUN League Football, "Rams"
Volunteer Teaching: Wesley Elementary, St. John's School, Walnut Bend Elementary
HISD Science Fair Judge
Board Member: Bayou Preservation Association
Rivercrest Civic Association: various positions

HOBBIES

Sailing, off-shore racing and cruising, (*Bonaventura*, an Island Packet 38)
Amateur radio operator (Station call KB5YYE)
Poetry, Tennis, Skiing, Backpacking, Camping (Mr. Mitchell is an Eagle Scout.)

Major Projects

University of Arizona, Hybrid Computer Laboratory, Tucson, Arizona

Under Dr. Granino A. Korn, the Hybrid Computer Lab was building a large, very high-speed analog/digital computer for solving equations in optimal feedback control problems requiring iteration, Monte Carlo methods, or statistical methods as might be encountered in random process simulation of non-linear, stochastic systems. Specifically, Mr. Mitchell was responsible for the following projects.

- Design, build, and test a high-speed analog quarter-square multiplier for the lab's main computer - ASTRAC II.
- Design, build, and test a pseudo-random noise generator for ASTRAC II.
- Design, build, and test a multi-parameter optimizer for ASTRAC II to solve boundary-value problems with mixed end-conditions and other problems requiring iterative procedures.
- Taught the laboratory section of an undergraduate course on the use of analog computers to solve systems of differential equations

Electronic Associates, Inc., Advanced Study Group, Princeton, New Jersey

EAI, headquartered in Long Branch, was the world's largest manufacturer of analog/digital computers. The Advanced Study Group in Princeton was their R&D operation. Mr. Mitchell was responsible for the following projects which included both hardware design projects and simulation studies.

- Hybrid simulation of missile nose-cone ablation during re-entry.
- Hybrid simulation of F-111 terrain-following radar control system (for General Dynamics, Ft. Worth).
- Analog simulation of ionospheric electro-magnetic ray tracing (for USAF Cambridge Labs).
- Design the analog-digital interface for the company's new Model 580 hybrid computer.
- Evaluate glass delay lines as storage media for company products.
- Evaluate a special-purpose hybrid design for a possible voice recognition system.
- Implement a hybrid system for extracting human ECG's from signals with very low signal to noise ratios (for NYU).
- Designed and taught several courses on the use of hybrid computers in simulation and math modeling for the company's customers.

University of Texas Cancer Research Center, Houston, Texas

UT has a 600 bed cancer treatment hospital and a basic research center (M. D. Anderson Hospital and Tumor Institute) with departments of physics, biology, epidemiology, and biomathematics. Mr. Mitchell was hired to set up and run a bioengineering section within the biomathematics department. This section had the responsibility for all basic research, teaching, and support of other departments in computers and bioengineering.

- Mr. Mitchell established a large hybrid computer facility with a staff of engineers and programmers for research, teaching, and support. Mr. Mitchell was Principle Investigator on a number of NIH and NASA grants and contracts for projects in bioengineering. Some of the major projects he and his group completed are listed below.
- Implemented an on-line surgical monitoring system for the hospital.
- Implemented an on-line digital analyzer for Xenon-133 lung function testing.
- Implemented a digital system for both 12-lead and 3-lead ECG's.
- Grew a large, comprehensive simulation of the human cardio-vascular hemodynamic system. (This model incorporated anatomically correct geometry and had gravity terms on the blood flow. The baroreceptor/heart-rate control loop was also included. For astronauts undergoing high-G re-entry, the model was used to study blood pressure distributions at various couch angles and with various cardio-vascular de-conditionings as might result from prolonged space flight.
- Developed and implemented the on-line in-flight ECG monitoring system for Apollo astronauts.
- Developed a system for radiation dosimetry treatment planning for cancer patients.
- Developed an image analysis system for human chromosome classification.
- Developed a system for automating hospital pathology laboratories.
- Designed and taught a number of courses on computer modeling and simulation to medical students and graduate students in biology, biochemistry, and other life science disciplines.

Community Health Computing, Inc., Houston, Texas

Selected Bibliography

Publications

1. Wait, J. V. and Baker A. Mitchell, Jr. A Simple Solid-State Digital-to-Analog Converter for Hybrid Computing Systems. *ACL Memorandum* No. 61, the University of Arizona, Department of Electrical Engineering, February, 1963, 15 pp.

2. Hampton, R., G. A. Korn and Baker A. Mitchell, Jr. Hybrid Analog-Digital Random Noise Generation. *IEEE Trans. Electr. Computer*, Vol. EC-12, No. 4, pp. 412-413, August, 1963.
3. Mitchell, Baker A., Jr. A Hybrid/Analog-Digital One-Parameter Optimizer. *Annales de L'Association Internationale pour le Calcul Analogique*, No. 1, pp. 32-37, Bruxelles, January 1964.
4. Mitchell, Baker A., Jr. A Hybrid Analog Digital Parameter Optimizer for ASTAC II. *Proceeding of the Fall Joint Computer Conference*, pp. 271-285. Spartan Books, Inc., Baltimore, Maryland, Cleaver-Hume Press, Lond, 1964, 629 pp. Reprinted with minor revisions in *Simulation*, Vol. 4, No. 6 pp. 399-411, June, 1965.
5. Mitchell, Baker A., Jr. Hybrid Techniques in Statistical Analysis I. *Simulation*, Vol. 5, No. 2, pp. 87-89, August 1965.
6. Mitchell, Baker A., Jr. Hybrid Techniques in Statistical Analysis II. *Simulation*, Vol. 5, No.3, pp. 160-161, September 1965.
7. Mitchell, Baker A., Jr. and Lee D. Cady, Jr. Hybrid Computing Techniques Applied to EKG Analysis. *Ann N.Y. Acad. Sci.*, Vol. 128, Art. 3, pp. 850-860, January, 1966.
8. Cady, Lee D., Jr. and Baker A. Mitchell, Jr. Computer Components for Electrocardiographic Processing. *The Amer. J. Med. Electronics*, Vol. 5, No. 1, pp. 40-43, First Quarter, 1966.
9. Simons, David G., Baker A. Mitchell, Jr. and Ronald Rathjen. Physiometrics Data Acquisition. *Proceedings of the Fourth Annual Symposium on Biomathematics and Computer Science in the Life Science*, Houston, Texas, March 24-26, 1966. Abstracts, p. 58.
10. Mitchell, Baker A., Jr. On-Line Hybrid Computing at Anderson Hospital: A Progress Report. *Proceedings of the Fourth Annual Symposium on Biomathematics and Computer Science in the Life Science*, Houston, Texas, March 24-26, 1966. Abstract, p. 78.
11. McLoed, John, Baker A. Mitchell, Jr. and Nathan Zainfeld. PHYSBE - With Emphasis on the Left Heart and Aorta. *Proceedings of the Fifth Annual Symposium on Biomathematics and Computer Science in the Life Sciences*, Houston, Texas, March 30, 31, and April 1, 1967. Abstract, p. 95.
12. Mitchell, Baker A., Jr. On-Line Analysis for High Noise Electrocardiograms. *Proceedings of the Seventh Annual Symposium on Biomathematics and Computer Sciences*, March 28, 1969, p. 41.
13. Mitchell, Baker A., Jr. On Appropriate Choice of Criteria for Minimization in Least Squares Regression. *Proceedings of the Eighth Annual Symposium on Biomathematics and Computer Science in the Life Sciences*, March 23-24, 1970. Abstract, p. 69.
14. Mitchell, Baker A., Jr. and Stephen M. Sloan. ANSUR - ANesthesiology SURgery Information System. *Proceedings of the San Diego Biomedical Symposium*, San Diego, California, pp.9-12, April 1970.
15. Mitchell, Baker A., Jr. Introduction to Analog/Hybrid Computation. *Bioengineering: A First Course*. Edited by Stark and Jacobs, F.A. Davis, 1971.
16. Thames, Howard D., Jr. and Baker a. Mitchell, Jr. Mathematical Model Simulating Photon Transport in Tissue: Gamma-Ray Dosimetry. *Summer Computer Simulation Conference*, Boston, July 1971.
17. Grant, W.H., G. D. Oliver and B. A. Mitchell, Jr. Automatic Analysis of Empirically Derived LET Spectra. *Health Physics*, Vol. 22, pp. 351-354, April, 1972.
18. Mitchell, Baker A., Jr. Basic Simulation Techniques - Analog, Digital, and Hybrid. Part I, Chapter 2, Computer Techniques in Biomedical Engineering. Gordon & Breach, 1972.
19. Mitchell, Baker A., Jr. and Robert P. Giese. A Cardiovascular System Model for Lower-Body Negative Pressure Response. Republished by *Analog/Hybrid Computer Educational Society*, Vol. IV, No. 5, pp. 81-108, May, 1972.
20. Mitchell, Baker A., Jr. and Robert P. Giese. A Cardiovascular System Model for Lower-Body Negative Response. Prepared for the National Aeronautics and Space Administration under Contract NAS 9-11119, September, 1972.
21. Ong, P.S., P. K. Lund, C. E. Litton and B. A. Mitchell, Jr. An Energy Dispersive System for the Analysis of Trace Elements in Human Blood Serum. *Advances in X-ray Analysis*, Vol. 16, Plenum Publishing Corporation, 1973.
22. Mitchell, Baker A., Jr. The Quest for the Perfect L.I.S. *Source* Vol. VIII No. 3, 1986.
23. Mitchell, Baker A., Jr. Fault Tolerant Hardware Takes an Evolutionary Step. *Computers in Healthcare*, May, 1987.
24. Mitchell, B.A. Improved RFP Will Raise Information Systems Standards, Proceeding of the American Association for Medical Systems and Informatics Sixth Annual Congress 1987, AAMSI '87, Washington, DC.

Articles About

Childs, Bill W. CHC Plans for Total Healthcare System Integration. *Healthcare Computing & Communications*. Vol. 4 No. 3, March, 1987.

Patents

- Mr. Mitchell is the sole inventor of a patent for a computer file system for patient medical data. In 1973 he assigned ownership of the patent to his company Community Health Computing, Inc. for marketing, sales, and installation of systems based on his patent.
- Mr. Mitchell is co-inventor of a patent for a decorative lighting device. In 1995 he assigned ownership of the patent to Holiday Innovations, Inc.

Invited Presentations

- June, 1965: "Hybrid Computing Techniques Applied to EKG Analysis." The New York Academy of Sciences Symposium on Advances in Biomedical Computer Applications, New York, New York.
- March 24-26, 1966: "On-Line Computing at Anderson Hospital: A Progress Report." Fourth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas.
- January 17-18, 1967: "A General-Purpose Lumped Model of Cardiovascular Dynamics for Hybrid Simulation." Meeting on Simulation in Medicine and Biology, Mayo Clinic, Rochester, Minnesota. Meeting co-hosted by Simulation Councils, Inc., and the Mayo Clinic.
- March 30-31, and April 1, 1967: "PHYSBE - With Emphasis on the Left Heart and Aorta." Fifth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas.
- April 18-20, 1967: Session Chairman, "Biomedical Computer Applications," Spring Joint Computer Conference, Atlantic City, New Jersey.
- March 14-16, 1968: Session Chairman, "Image Processing I." Sixth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas.
- November 22, 1968: "Time Constants and Stability in Physiological Systems." Simulation Councils Regional Meeting, NASA Manned Spacecraft Center, Clear Lake, Texas.
- March 28, 1969: "Adaptive, On-Line Analysis for High Noise electrocardiograms." Seventh Annual Symposium on Biomathematics and Computer Science in the Life Sciences.
- March 28, 1969: Session Chairman, "Neutron and Growth Models." Seventh Annual Symposium on Biomathematics and Computer Science in the Life Sciences.
- September 19, 1969: "Biomedical Simulation in the 70's." Simulation Councils Regional Meeting, NASA Manned Spacecraft Center, Clear Lake, Texas.
- March 24, 1970: "On Appropriate Choice of Criteria for Minimization in Least Squares Regression." Eighth Annual Symposium on Biomathematics and Computer Science in the Life Sciences.
- April 3-8, 1970: "ANSUR - An Anesthesiology Surgery Information System.: San Diego Biomedical Symposium, San Diego, California.
- March 11, 1971: "Pathology Automation at M.D. Anderson Hospital, The Methods and Goals." Department of Biomathematics Seminar Series, Houston, Texas.
- March 22-24, 1971: "Simulation of the Endocrine System." Ninth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas.
- October 22, 1971: "A Cardiovascular System Model." Hybrid Simulation Symposium, The University of Texas at Austin, Austin, Texas.
- August 15, 1972: "Hybrid Computer Applications in Bioengineering." Catholic University of La Plata, Argentina School of Applied Mathematics, La Plata, Argentina.
- February 21, 1973: "On-Line Pathology Information Management System." Data Processing Management Association, Eastex Bay Chapter, Baytown, Texas.
- March 8, 1973: "Real-Time File Systems for Pathology Data." Central Texas Section Meeting of IEEE, The University of Texas at Austin, Austin, Texas.