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Mel Conway, Ph.D.

I am an entrepreneurial technology professional, inventor, and educator with advanced degrees in Mathematics and Physics. I have co-founded two technology companies, published several widely cited papers, and have been issued a major software patent.

Education			
	Ph.D.	Mathematics	Case Western Reserve University
	M.S.	Physics	California Institute of Technology
	B.S.	Physics	Case Western Reserve University

Career Highlights

Major software patent filed September 1995, issued August 2001. *Dataflow Processing with Events*, No. US 6,272,672. 151 claims, 115 figures.

Design and construction of computer hardware. Under contract to Mass. General Hospital I built the first freestanding digital video viewer for medical CAT scanners. MGH's experience led to two more contracts, from the Washington University Medical School and Brookhaven National Laboratory. All of these machines were entirely of my design and execution; except for outsourcing the construction of the memory boards which I had designed, I did everything: proposal, negotiation, all design, drafting, purchasing, construction, test, documentation, installation, training, and service. I delivered **two radiology conference papers** in the 1970s describing these machines; one of these proposed a scheme for digitally distributing radiographic images, now in common practice.

Practical research in software technology whose impact has been felt at many places in the computer industry. Two 1963 papers in *Communications of the ACM* reported four innovations in compiler technology, including the *coroutine*.

Participation in multiple aspects of education. I was intimately involved in the planning and creation of two independent schools: the Primary Unit of Notre Dame Children's Class (pre-K to 2, Wenham, MA) and Glen Urquhart School (K-8, Beverly, MA). I wrote and presented to the respective governing bodies the initial financial plans for both schools. For NDCC I solicited bids and managed the extensive modifications of an existing building.

Professional Focus

Simplification of Software Building
I have developed an essentially simpler, yet general, visual model for understanding and building interactive computer applications. The patent cited above describes in detail a concrete realization that I built.

Sociology of System Design
In graduate school I concentrated in Operations Research. This interest in quantitative system analysis led to the 1968 publication of the principle now known as **Conway's Law**, described in *Wikipedia* and elsewhere. The principle describes a necessary relationship between the structure of a design organization and the structures of the designs it is able to generate.

Working with Lawrence Weed, M.D. at the University of Vermont School of Medicine, I developed a functional and information-flow design of a national digital library to maintain and distribute a database of problem-oriented protocols for use in health care. This database was to be the navigation subsystem of medical data-capture and record systems; it was running in prototype form in one hospital at UVM in the 1970s.

Experience as an Educator	Full-time public high school teacher. Mass. licenses: Physics 8-12, Math 8-12.
	Designed and taught undergrad/graduate computer science courses at CWRU.
	Taught university freshman physics at Caltech. (Began midyear and improved the final placement of my section from 9th of 9 to 2nd to the honors section.)
	Invited seminars: MIT, Caltech, Washington University, IBM.

Employment

Educator

Fall 2008	Adjunct Faculty, Endicott College.
Fall 2003 – Summer 2007	Chelsea High School, Chelsea, MA.

Technology and Management Consultant

1992 – 2003	Some engagements:

United a ten-person software development team from warring groups in two companies and managed the successful completion of its graphical PC-based laboratory workstation.

Participated in development of a trader workstation at J.P. Morgan Bank.

Senior Architect/Director

1988 – 1991	Wang Laboratories, Inc.

Co-Founder, Corporate Director, Chief Scientist

1982 – 1987	THINK Technologies, Inc.

Developed the technology that was the basis of the company's initial product, Macintosh Pascal. This Apple-labeled product was key to the success of the Macintosh in undergraduate Computer Science education.

System and Technology Consultant

1971 – 1982

Hardware and software development and system analysis. Some clients: Brookhaven National Laboratory, Burroughs Corporation, US Department of Health Education and Welfare, Digital Equipment Corporation, Massachusetts General Hospital, Monroe Calculator Company, National Bureau of Standards, Raytheon Corporation, Rockwell International Corporation, US Air Force, US Veterans Administration, and Washington University Medical School.

References	Wikipedia citations: Conway's Law, Coroutine, Uncol, Biography
	A concise description of the patented technology:
	http://melconway.com/hand-eye-brain.pdf

Avocation

Vocal Music
Four years, Cleveland Orchestra Chorus (Robert Shaw, George Szell)
Eight years, Tanglewood Festival Chorus-Boston Symphony Orchestra (John Oliver, Seiji Ozawa; performances in numerous venues including Boston, Tanglewood, Carnegie Hall, Lincoln Center, Hong Kong, Tokyo, and Osaka.
Formal voice studies: 1987-2002