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DIGITAL/ANALOG COMMUNICATION TECHNOLOGY STATE UNIVERSITY OF NEW YORK AT BUFFALO



The designated title chosen for this special major is: **Digital/Analog Communication Technology**. The culmination and completion of this program shall have taken place at S.U.N.Y. at Buffalo. The aim of this cover letter is to document and clarify the special major produced by Douglas R. Donahue.

After attending 2 years of undergraduate work, I left school. Although I had only a limited background in electronics at the time, I had the desire and ability to adapt and learn quickly. I worked as a Field Service Electronic Technician, repairing computer equipment, in the Silicon Valley for a year. I then returned to the East Coast where I worked as a Product Support Specialist and Systems Coordinator for a computer graphics corporation.

Throughout the time previous to enrolling at U.B., I wasn't certain where my future might lead me. Through formal education, hard work and travel experience, certain interests, insights and goals were formulated. The objective of my undergraduate education will have been aimed at equipping me with sufficiently strong background, familiarity and insight into various worlds associated with (digital and/or analog) communication systems. An additional objective of this **Special Major** shall have been the preparation of graduate studies and continued expertise development.

Communication has and shall always be the means by which humans prosper and advance. The notion and practice of communication is an old one but the means by and thru which communication takes place is where the promise for the future development of mankind exists: different types of information convey different types of meaning, likewise, the means by which information types are exchanged and dealt with are quite diverse.

The technological revolution has drastically altered the two most powerful means by which humans interact. Mankind's auditory and visual realms have become digitized. In this way, every aspect of human interaction, from prebirth until death, is being modified. Ultrasound scans of pregnant women are common procedures these days. Doctors can analyze digital representations of the ultrasound scans to determine a fetus' condition. LANDSAT, SEASAT, Synthetic Aperture Radar, Voyager, Pioneer and the Space Shuttle's Imaging Radar - all encode and relay important geographic, meteorological, population density and solar system data on an hourly basis. Each time the telephone is used, Pulse Coded Modulation digitizes the human voice. In this way humankind and machine can speak a universal language. Most operators have been replaced by a hierarchy of Stored Program Automated Switches. Phone lines are being upgraded with satellite, microwave and fiber optic links, which accommodate simultaneous, voice, data, facsimile, and video transmissions. The pervasive rationale, which establishes the future viability of this Special Major, is intimately related with the fundamental communicative nature of these advanced technological wonders.

My primary objective and ultimate goal is, to pursue a career in the area of **Advanced Communication Systems**. Prospective employment opportunities fall within a fairly wide technical spectrum. Applicative examples might include gaining employment as a corporate Audio/Visual Conference Studio Engineer, who installs, upgrades, monitors, etc., all transmission/reception equipment for a given teleconferencing installation. At the other end of the spectrum, employment might be gained as a System Engineer who is involved with pattern recognition/synthesis systems for a telecommunications or artificial intelligence research laboratory. The Digital/Analog Communication Technology Special Major will have effectively prepared me to handle the challenges imposed by these specialized communication fields. That is, having studied various aspects of computer systems in ECE 475 Mini Computer Interface Design, SYS 441 Micro Processors and their Applications, MAS 47,1 Computer Circuits and Components, CS 2,41 Machine Organization and Programming, etc., I have acquired a solid foundation in the structure, functionality and applicability of current computer systems in use today and those that will be used tomorrow. The 25 credits of computer science coursework has supplied me with a solid foundation in industry recognized programming standards and has provided me with a powerful assortment of industry applicative programming languages with application, A solid foundation in ADC/DAC, analog signal modification/generation via digital signal processing methodologies and artificially intelligent systems composition was acquired by having studied MUS 553 Science, Music & Technology, CDS 495 Computers in Speech and Hearing CMS 419 Digital Arts Workshop, MAS 281 Synthesizer MUSIC, MUS 401 Audio Technology, etc.. The combination of these otherwise separate communication fields is the key factor, which is providing a requisite interdisciplinary foundation for the pursuit of a career in the area of Advanced Communication Systems.

I have been employed as an Engineer's Assistant in the Telecommunications Industry, Data Center Operational Supervisor, a CAD/D Systems Coordinator, a Product Support Specialist and an Electronic Technician while working toward the completion of my undergraduate education. I feel that this Digital/ Analog Communication Technology Special Major in conjunction with these experiences will prove to be of invaluable support toward the quest of becoming a Communication Technology Engineer and graduate education.