

ORIGINS OF THE COLLEGE of COMPUTING (1945-1990)¹

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You have to know the past to understand the present.
- Carl Sagan,
Astronomer, Writer, & Scientist

This paper has evolved from what originally was intended only to be a short preamble to the College of Computing history. The College did not officially exist until 1990, but as the history unfolded, it became a fascinating story with colorful characters, academic themes that were ahead of their time, and a history that can be traced back to seventy-year-old roots.

The origin of the College of Computing is a story of intuitive vision, fortunate hires and timing, good responses to changing conditions, a spirit of innovation, and, of course, hard work. It includes visions held by among multiple people – a creative, productive faculty that formed a mini think-tank in the early years, a World War II (WW2) refugee with an eclectic education, a librarian who knew nothing about computers, and a WW2 research director with amazing foresight. It benefited from a string of strategic and forward-looking leaders, some benign neglect, and a rich technological environment in which to grow.

The Crosland Era (1945 – 1964)– Broadening Beyond Numerical Computation

Although the intellectual foundations of the College can be traced back to 1945 and the seminal paper by Vannevar Bush, “As We May Think,” the Georgia Tech (GT) story begins in 1947 when a \$300,000 (well over \$3 million today) Westinghouse A-C Network Calculator was given by Georgia Power Corporation to the school. This machine, an analog computer, was one of the first such machines in the country and was used productively on campus until the early 1970s. As a few engineering and science faculty at

¹ Primary sources for this article are given at the end. Special thanks are due to several

Tech increased their research activity and employed more numerical procedures, the need for digital computation became evident. At the same time, Atlanta commercial organizations were starting to explore digital computerization for their own purposes. This resulted in external and State financial support for the Rich Computer Center (RCC) building, named after the Rich Foundation of the local merchant family for its financial contribution, and the purchase of early digital computers beginning in 1954. The Rich Building is still in use today as the primary site of campus central computing services.

The growth of research work at Tech and the on-campus computational resources to support it (or, perhaps, the other way around?) led to the installation of successively more powerful and advanced machines – a story that continues to this day. Early machines included an NCR-102-D, a Remington Rand ERA-1101, an IBM 650, a Burroughs 220, and a



Burroughs B5000 and later many other machines of increasing power and sophistication. The growth of instrumental use of computing also led to the use of some sophisticated software, such as the programming language Algol, and the hiring of knowledgeable people already known and active in the world of computing.

At the same time a second activity arose in an area far afield from most of the ongoing research and education at Tech – Library Science. Head Librarian Dorothy Crosland through her attendance at professional meetings became aware in the late 1950's that "information work," as distinct from traditional library science, was emerging as a new field of great practical application. Although not a technologist, she understood that computers would be an essential part of gathering, storing, and collecting information in the future, and that these were activities worthy of academic study and education. Following her intuition, she decided that Tech should take an early lead in the use of computers for information work.

When she set about to make Tech a leader in the new field of information science, her intuition was correct, although the eventual result in the form of education and research of the CoC would have been far beyond anything she could have imagined. One of her professional friends, Burt Atkinson,

was the head of a new National Science Foundation (NSF) program, created in response to the launch of Sputnik, which focused on developing the new field of “information science.” This friendship enabled her to obtain NSF funding to hold two national meetings at Tech on “Training Science Information Specialists” in 1961 and 1962. She then urged Atkinson to fund educational programs, and was encouraged to submit a proposal to NSF.

She enlisted the on-campus help of William Atchison, head of the Rich Computing Center and Professor of Mathematics (and active in the Association of Computing Machinery (ACM) educational efforts); Vernon Crawford, Professor of Physics and later Chancellor of the University System; and Waldemar Ziegler, Professor of Chemical Engineering, to visit Europe to study what was being done there in education for the new field. They wrote up a proposal to create a Masters Degree in Information Science, which was accepted by Tech and funded by NSF with about \$200,000 (about \$1.5 million today). The School² of Information Science was created administratively early in 1963 and in all likelihood was the first of its kind in the U.S.

Dorothy “Dot” Crosland (1903-1983), an Atlanta native, was the only woman in the Tech administration at a time when there were not even women undergraduates. Crosland was a remarkable leader with a long and effective record of pushing Tech forward. Beginning in the 1930s she started to expand the library holdings significantly, then immediately after WW2 she raised private money to make a remarkable trip during which she bought a huge amount of important journals and books in war-ravaged Europe. The Library Building was much too small to house the new holdings, so she raised more money for a modern library building to house them that is still the main Library today. She engineered the first admission of women students, helped make other changes on campus, and should be credited as the founder of academic computing programs at Georgia Tech. This resulted in many valuable connections and a large amount of respect on campus, within the state political leadership, and beyond.

Not stopping there, she went on to recruit a director for the new program starting in the fall of 1963. While attending a meeting in Chicago to scout out possible directors, Crosland and her team heard a scientist named Vladimir Slamecka present a paper and were impressed by his vision for information science. After he finished, the four approached him, explained

² Schools’ at Georgia Tech are organizationally the same as ‘departments’ elsewhere.

what they were doing, and invited him to visit campus. He only vaguely knew where Atlanta was as he had never been south of Washington D.C., he had never heard of Georgia Tech, and had no particular interest in moving since he was a leader in a very early startup that was rapidly expanding. Undeterred, Crosland persevered and eventually convinced him to visit Tech in April of 1964.

Although he found the new activity and the campus interesting, he was not motivated to move because he earned a good salary and had a young family to support. Slamecka reported to Crosland after his interview with President Harrison that he knew they would never pay the salary he needed in order to move. Determined to not let this promising candidate get away, she picked up the phone and called the president. Two hours later they were invited back to the president's office where Harrison offered Slamecka the job of Director at the higher salary he had mentioned to Crosland. This was the deciding factor for him and after discussing it with his wife they moved to Atlanta where he took over as Founding Director in the summer of 1964.

Crosland's collaborators had already started to offer a few courses in the new school, and had recruited a few students to pursue the first majors in Information Science (IS). Efforts to obtain Regents' approval to offer a degree bore fruit in early December 1964 when the Board authorized the School to offer an M.S. in Information Science. The thesis of the first student, Joanne Butterworth, was signed off just days later. She officially received her diploma on June 12, 1965, becoming the first Georgia Tech graduate with a degree in a computing-related field.

The Engineering College at that time was dominant on campus, but it had no desire to add the new School to its roster and the School of Electrical Engineering (EE), in particular, indicated it had absolutely no interest in computers. The General College (as it was called at the time), which housed Mathematics and the traditional sciences agreed to take the IS School, but without any promise of resources since IS was a graduate-only school and at the time Georgia Tech was an undergraduate-focused institution. Emblematic of this "benign neglect," the entire School was housed in one room in the basement of the new Van Leer Building (home of EE).

The story of how the only woman in the Georgia Tech administration almost single-handedly positioned the campus as an early leader in the new field and created an understanding on campus that computers were for more than

just crunching numbers for research is remarkable. It is the GT chapter in the still developing and largely unrecognized story of the way women— Ada Lovelace, the women programming ENIAC, Grace Murray Hopper, and others - were responsible for some of the most important parts of the early development of computing³.

The Slamecka Era⁴ (1964 – 1978) - Designing A New Discipline And Building The Foundations

Slamecka led the new School from Fall 1964 until Spring 1978. Under his leadership, the breadth, depth, and innovation in curriculum and research, the spirit of interdisciplinary and international interactions, the emphasis on



combining education with impactful research, and the goal of hiring the best faculty available were all initiated and continue to this day.

He was a builder and recognized the opportunity to build a unique program on the foundation laid by Crosland and her collaborators. Although largely unrecognized on campus (more benign neglect) at the time and to a large

extent later, his acceptance of the opportunity at Tech was one of those fortunate events that laid the foundation for the College.

1964-1970: Beginnings.

When he arrived at Georgia Tech, Slamecka had no permanent faculty, no courses, and almost no support from the administration or other units – but by being largely neglected he was able in the ensuing years to develop the School without much interference. At the same time, there were students clamoring to enroll so he needed to create a curriculum and hire faculty quickly.

³ *The Innovators*, by Walter Issacson, Simon & Schuster, 2014, details some of this story.

⁴ The video interview of Slamecka referenced below provides some additional detail.

Fortuitously, he had read and resonated strongly with the prescient vision laid out by Vannevar Bush in his famous 1945 *Atlantic Monthly* article that very accurately envisioned today's internet-connected, information-rich world. Slamecka used that as a guide to develop rapidly a comprehensive curriculum. While most leaders in computing were at least aware of the Vannevar Bush article, and some were in effect working to make his technical predictions

Vladimir "Vlad" Slamecka (1928-2006) was born in Brno, Moravia, Czech Republic. A student during WW2, he was studying chemical engineering in 1948 when the communists took over. Because of his political leanings, he was forced out of the university and escaped to Austria where he lived in a displaced persons camp for two years. He made his way to Australia, spent a year in a hospital recovering from a skiing accident, and would have been deported except for the graces of a war-survivor doctor. After completing his studies in Australia he went to Munich and worked as an engineer (coauthoring nine patents for engineering innovations). He studied sociology and eventually was able to come to America. He earned a Ph.D. at Columbia in 1962 and then worked for an early startup – Documentation, Inc. – as research director. He had interest in and experience ranging from hardware design to formal logic to the architecture of information systems in the broadest possible sense. His personal story is fascinating and documented in his own words in the video interview referenced below.

come true, few, if any, explicitly based the organization of a new curriculum and associated faculty research themes using Bush's vision as a guide. This planted the seeds at Tech for the future breadth of the CoC and its leadership in information-centric areas, coupled with technology leadership, to enable the realization of human-centered systems.

There were three main themes to Slamecka's curriculum that can still be seen in the College today: the design of information systems, the design of computer systems, and the theories that underlie these two activities (which formed the foundation for the first IS Ph.D. program). With a framework for the curriculum, he then had a plan to guide hiring permanent faculty to augment the few people already on campus (mostly in the RCC) who were teaching beginning and/or applications courses.

Among the earliest instructors from the Computer Center were John Goda (1939-2013) for software courses and Pete Jensen for hardware courses. Both continued as faculty until after the founding of CoC and, in Goda's case, well into its second decade. Pranas Zunde (1923-2004) began as an instructor in 1966 and later became a professor in IS after finishing his Ph.D. in the Industrial Engineering (IE) School. He had been a researcher at

Documentation, Inc., the company in Washington where Slamecka was director of research before coming to Tech. The Industrial Engineering School permitted Zunde to fashion his own interdisciplinary study program. After finishing his thesis, he became an Associate Professor of Industrial Engineering and Information Systems and served as the director of the Systems Engineering interdisciplinary program. The IE School changed its name to the current Industrial and Systems Engineering (ISyE) School largely on the basis of the great interest shown in the systems program innovated by Zunde. He later worked solely in the School of Information and Computer Science (ICS), retiring from CoC in 1992.

Growth of the program, driven by student demand, was strong. By the fall of 1966 there were 25 MS students enrolled and by 1970 this number grew to 100. The faculty had to develop courses almost as they were given; Zunde, for example, was credited with developing eighteen courses himself! Demand for undergraduate courses in computing also built rapidly and by 1968 there were fourteen in addition to twenty-one graduate courses listed.

To augment the faculty engaged in research, Slamecka invited a series of prominent researchers in information science from around the world to visit and present lectures, short courses, and intensive courses. Among these during the late 60s, were a number of cyberneticists (apparently in Slamecka's view cybernetics was at the intersection of information science and systems theory). This not only rapidly spread the word that something new and ambitious was happening at Georgia Tech, but began to create a spirit of basic research and outreach. Initial collaborations were also set up with several foreign universities.

An NSF grant of over \$1.3 million (close to \$10 million today) to create a computer lab was soon awarded, one of the first two grants in the country for that purpose. Jensen joined the faculty full-time as a lecturer in 1967 and brought with him his interest in making computers usable for a wide range of applications as well as his expertise in hardware, timesharing, networking, and applications usability. He created the first student computer lab on campus utilizing the funds from NSF and continued to build and operate the computing infrastructure of the School for a number of years. With the new funding, Slamecka was able to obtain space in the D.M. Smith building for the School by 1969; in 1974 the School moved to the Skiles Building, where some faculty and graduate students already had space. The stay there was

brief because by 1976 the School was housed in the Rich Computer Center, where it stayed until 1989.

The early research activity in the School of Information Science, driven by faculty and Slamecka's interests, were in the mainstream of information science work at the time. Prominent among these activities was a strong commitment to linguistics. Beginning with Jimmy Gough, a member of the original "shared" faculty (he had been on the faculty of Modern Languages since 1957), and later supplemented by Dave Krause and David Rogers – all noted linguists, a strong computational linguistics program was launched attracting several Ph.D. students. After he left Tech in (1972) Krause went to the National Library of Medicine, where he led its linguistics group for many years. Ultimately, however, IS's program atrophied as the faculty moved on (or back to their primary departments) and the School increasingly focused on mainstream computer science.

Commensurate with Slamecka's original framework, development of a Ph.D. program began as soon as permanent faculty was added. This work accelerated in the 1967-68 academic year, resulting in an approved Ph.D. in Information Science first officially offered in the 1968-69 academic year. Lucio Chiaraviglio, a philosopher with strength in logic and linguistics, joined the faculty at the start of the new academic year as director of the Ph. D. program. He soon became a unifying figure for the Ph.D. students and an important part of the linguistics and logic research groups that began to develop. He was a key member of the faculty for over twenty years, finally retiring from CoC in 1992 after filling a variety of important roles in the developing school and college.

In 1969-70, an undergraduate curriculum was developed in response to increasing student demand and campus approval to offer a BS was sought. Unfortunately, the School of Electrical Engineering blocked approval for a year, after which it relented and permitted the proposed major to proceed.

1970-1978: Increasing interest in computer science.

Although it may not have been entirely to the liking of all of the IS faculty, in 1970 the name of the School was changed to Information and Computer Science in recognition of the increasing demand of students for computer

science courses and a national trend evident at many other leading universities. While approval of a B.S. degree was still pending, an interdisciplinary minor in ICS was started to accommodate student demand.

The 1970-71 academic year saw the granting of the first Ph.D. in Information Science at Georgia Tech to Jesse Hubbard Poore (1942-2012) in September 1970. In early 1971 two more Ph.D.'s in IS were granted – the last two since future degrees were in Information and Computer Science until the CoC was founded. In the 1971-72 academic year the first PhD's. in ICS were granted to Robert Charles Roehrkasse and the second to Richard DeMillo, future dean of CoC.

By 1973, ICS was the largest graduate program at Georgia Tech, quite an achievement for a new unit that ten years prior was totally ignored! That year it also started offering a joint graduate degree program in Biomedical Information and Computer Science that was developed with Emory University's School of Medicine. This collaboration was unique for its time, and presaged further cooperation between the two institutions in this and other areas in the years to come. It attracted a young graduate student, Craig Mundie, later Chief Architect of Microsoft and a supporter of CoC to this day. Unfortunately, the program suffered under a variety of organizational problems and was eventually discontinued.

Slamecka was able to hire several key faculty who did stay and eventually became leaders in CoC - Albert Badre (1973), Phil Enslow (1975), Rich DeMillo (1976), Nancy Lynch (1977), and Rich LeBlanc (1978). Working with other faculty with similar interests, these faculty members planted some of the intellectual seeds that can still be seen today in CoC.

Albert Badre was a very early leader in Human-Computer Interfaces (HCI), organizing influential meetings and publications, starting Tech on the road to its current prominence in the field. Phil Enslow had a strong background in telecommunications and systems, which he brought to campus; he utilized a very early copy of UNIX outside of Bell Labs that had been installed in ICS around 1973, acquired an entire telephone switching system for teaching purposes, and made ICS a favored hiring source for the telecommunications industry. In 1977-78, Enslow published a seminal paper still quoted today defining distributed systems. He espoused a strong belief that the computing/operating systems and networking technology areas, then seen as entirely separate, would become joined completely. This view was certainly

not a common one in the computer science world at the time. In addition to being correct, it was representative of the kind of broad and intuitive vision that had characterized ICS since its founding.

LeBlanc, who was Slamecka's last hire when he joined the faculty at the beginning of 1978, brought expertise in programming languages and compilers. He joined in as Enslow led the development of a broad distributed systems research group that spanned operating systems, networking, programming languages and tools, databases and theory. This effort, supported over the next fifteen years by several large grants, laid a foundation for the development of several significant systems-related research programs within the School of ICS and the College and was a strong influence in hiring a number of future faculty leaders.

DeMillo brought expertise in theory, networking, and knowledge of a wide range of up-and-coming young computer scientists. Nancy Griffith bridged databases, systems, and theory, which, coupled with her longer experience, made her instrumental in hiring a number of younger faculty until she left in 1988 to go to Bell Labs. Nancy Lynch, George Davida, Rich DeMillo, and several younger faculty developed a notable theory group that helped put ICS on the map, especially in areas of security and networking.

DeMillo and Enslow worked to get Tech involved in networking at this time and were involved in the meeting at which the hourglass shape of the basic Internet architecture was decided on. DeMillo was later one of four PIs (along with Dick Lipton, a future CoC faculty member) on the proposal to create TheoryNet – the forerunner of CSNet, NSFNET, and the public Internet of today. In May 1979, DeMillo and Enslow represented Tech at the meeting that led to the creation of CSNet; at that meeting they chose the name 'gatech' for the primary domain name for Georgia Tech. Lack of campus resources, however, prevented Tech from participating in spite of their efforts. Georgia Tech eventually joined CSNet in the spring of 1982.

Looking back from the vantage point of fifty years later, it is easy to see that Slamecka was correct in holding to the vision that computing would go in the direction of focusing on information and its use, not only on the computer systems that processed it. However, in the 1970s, computer science in its more technical interpretation was growing rapidly, led by Carnegie Mellon, MIT, Stanford and a number of other schools including the University of Pennsylvania, Purdue, and Utah. At the same time, the long

process (still not nearly finished) of putting computation in the broadest sense on a firmer theoretical basis was taking hold.

Slamecka believed firmly that information was the scientifically more interesting area; he felt computers, while important, were not as interesting as objects of study. According to some of those there at the time, this created a rift in the faculty of ICS and eventually prompted him to step down as Director in the spring of 1978. He returned to the faculty and for the next ten years focused on information science and the establishment of important, practical information policies and systems in a number of countries abroad. He was recognized internationally for his contributions to and knowledge of information science and authored the definitive *Encyclopedia Britannica* article on the subject that is kept current by others to this day. In 1988, he retired but continued his professional activities until just a few years before his death in 2006.

The Miller⁵ Era - Building On The Foundations (1980- 1987)

Chiaraviglio was appointed Acting Director of ICS after Slamecka stepped down, a role he continued in for the next two years while a national search for a new Director was conducted. DeMillo and Lynch had published with Ray Miller, a noted mathematician/computer scientist at IBM Research, as had other friends of ICS including future faculty member Dick Lipton. At their urging, Miller agreed to visit Tech and he eventually was convinced to take the position. He began his tenure at the start of the 1980-81 year; Chiaraviglio became Associate Director and in Miller's words, was "invaluable."

Miller was asked by President Joseph Pettit (1916-1986) to create a strong computer science program and was offered substantial support by Dean Henry Valk. Pettit also gave him the title of Acting Associate Vice President for Information Technology to enable Miller to help direct the upgrade of the GT payroll system. Miller insisted that every ICS faculty member be provided a terminal in his or her office that would be connected to the main campus computer. This was apparently the first such capability in an academic department at Tech and according to Miller was "met with all kinds of wonder by others!"

⁵ Ray Miller's memoir cited below provides more detail from his perspective.

Miller was highly respected in the field, had edited the premier *Journal of the ACM*, and had spent most of his career as a researcher; his reputation



brought a measure of respectability to ICS which had been considered a “bit quirky” previously. Miller recalls in his memoir that when he came “ICS had a large number of undergraduate majors, a healthy masters program, a small PhD program, and offered almost no service courses.” He also found that many of the students counted as Ph.D. students were no longer enrolled or active. So, the stage was set for him to

build up the school in the more technical aspects of computing research.

During his first year, Jensen was tenured and promoted to Full Professor even though he did not have an advanced degree. Janet Kolodner, a future leader in the College and in AI, cognitive science, and learning sciences and technologies joined the faculty in late 1980. In March 1981, Badre sponsored a workshop on the relationship between humans and computers. He co-edited the resulting book, *Directions in Human-Computer Interaction*, which served as a baseline for the development of the field of HCI. This academic year was also when student submissions to the computer switched from punched cards to terminals!

At the start of Miller’s second year, 1981-1982, a wave of undergraduate students wanting to major in computer science hit the School. As a result he initiated an aggressive faculty recruiting campaign, using his broad and deep connections in the national CS community. At the same time he obtained permission to institute a cap on the number of undergraduate students in ICS to maintain reasonable class size and quality of instruction.

While managing the flood of undergraduates, Miller undertook to improve the quality and size of the Ph.D. program by increasing research facilities and funds to attract graduate students and enable their research work. An

important part of his focus on the Ph.D. program was his encouragement to faculty to obtain external funding for their research.

In 1981-82 Jesse H. Poore, holder of the first computing Ph.D. from Tech, was appointed Director of the Rich Computer Center and given a courtesy appointment in ICS. Martin McKendry joined the faculty and the distributed systems research group that year. He was an innovative systems researcher who led the initial work on the Clouds distributed operating systems along with his graduate student, Jim Allchin who later led the Platform Division of Microsoft, overseeing development of multiple versions of Windows products. That project was the start of a long line of distributed systems research in CoC.

Another important event that year was that Kolodner, with Larry Barsalou of Emory, started an Atlanta-wide cognitive science group that increased awareness of the subject at Tech. This, too, was a forerunner of a substantial amount of cognitive science based research by members of the faculty in later years.

The expanding size of ICS faculty, students, and research soon resulted in an expansion of the school from the basement of the Rich Building to the first floor in 1983, greatly improving the attractiveness to potential

faculty recruits of joining ICS. DeMillo established the Software Engineering Research Center (SERC) in 1984 to support a large DoD contract in software testing and evaluation that he directed from 1981 to 1987, when he moved to Purdue. The Center later spawned the Center for Information Management Research (CIMR) in 1989, an NSF Industry-University Cooperative Research Center (IUCRC) directed by Mike McCracken.

Raymond E. "Ray" Miller (1928 -) grew up in Wisconsin, majored in Mechanical Engineering at the University of Wisconsin, and joined IBM in 1950. He was assigned to a computer project, served in the Air Force during the Korean War, and afterwards was given leave by IBM to attend graduate school at the University of Illinois. He earned his Ph.D. in 1957 and joined IBM Research where he worked until 1980. He has been very active professionally, including holding several national leadership positions. During the 1987-88 year while on sabbatical, he was offered a new research leadership position in Maryland that he eventually accepted. He remained actively affiliated with the University of Maryland until retiring in 2002, but still frequents an office there. His 50 year career in computing is one of the longest, most impactful, and varied in the field. His memoir is referenced below.

Over the next three academic years ICS continued evolving. Miller and Chiaraviglio succeeded in their “space campaign” and were given the go-ahead for a new building to house ICS, the Computer Engineering faculty from EE, and (because of the dire need for new space on campus) freshman chemistry labs. They worked hard on the design since half the building would be devoted to ICS. The building opened in 1989 and is today known as the College of Computing Building (CoC now occupies all but the chemistry labs).

At the start of the 1985-86 year, two faculty members important to the future of the College joined ICS - Mustaque Ahamad in operating and distributed systems and later computer security, and Mostafa Ammar in networking. Also that year Kolodner, building on the group she helped start in 1982, started and led an interdisciplinary cognitive science program at Tech that later resulted in the hiring of several faculty in other schools as well as ICS. This was in line with the earlier vision of Slamecka of broad and interdisciplinary leadership on campus, as well as providing an excellent complement to the more technical aspects of ICS. The following year, 1986-87, Kishore Ramachandran, a future Presidential Young Investigator with expertise in parallel and distributed systems, joined the faculty. During that year, Ron Arkin, Tech’s first roboticist and future anchor of a much larger CoC robotics group, was recruited and then started in the fall of 1987.

At the start of the 1986-87 academic year Miller announced that he would be stepping down as Director in June 1987. Under his leadership, ICS developed more faculty-led research focus, growing expenditures to between \$2-3M/year. The total number of active Ph.D. students grew from 25 to 75, most of them supported with assistantships. The faculty he hired and encouraged, the structural changes he made, and the increased resources of money and space that he obtained laid the strong technical foundation on which the College of Computing was created.

The work of Crosland, Slamecka, Miller, and a cohort of strong, research-oriented, forward-looking faculty over more than twenty-five years prepared the foundations for the College. Slamecka credits the success of what he and others did, at least partly, to the “benign neglect” of the Administration and other academic units on campus – undoubtedly a contributing factor. Nonetheless, his vision, leadership, and hard work, followed by that of Miller and of Jensen were clearly the real factors.

A Period Of Transition (1987-1990)

The three years between spring 1987 and spring 1990 saw two important activities – continued forward motion of ICS and a major campus reorganization in which ICS was a major element.

Jensen’s leadership.

In July 1987, two faculty members, Jensen (coming out of “retirement”) and LeBlanc, moved into the top leadership positions in ICS as Acting Director and Acting Associate Director respectively. Jensen had been very active nationally (including on the Carter Presidential Transition Team) and had long been concerned with making systems created by technologists useful to non-experts.



LeBlanc, while working and teaching in core CS, had a strong interest in helping move ICS forward. Specifically, he was aware of and interested in the direction of the ACM Denning Committee’s work

(“Computing As A Discipline”) published in early 1989.

Alton P. “Pete” Jensen (1925-2005) was born in East Point, Georgia. He spent 50+ years at Tech - starting as a student and formally finishing as the first Associate Dean of CoC. Even after “retirement” he continued to advise and mentor many of us, providing great insight and wisdom. Pete taught thousands of students and individually advised in meaningful ways scores of us. He tutored dozens of local entrepreneurs, legislators (including former Speaker Newt Gingrich, who spoke at his Memorial Service), and governors – which probably led to his working with President Carter. He engendered a lasting and deep respect from all with whom he had had more than casual contact. He was much more than the perfect steward of the transition from School to College – the impact of his life at Tech can still be plainly seen in the College today. His life is an avatar for Georgia Tech and the College of Computing – rooted in traditional beginnings, open to change, with the ability to see

Miller’s push to hire more faculty continued. Among the faculty members key to the future of CoC hired under this time through Jensen’s leadership and with the essential involvement of Kolodner and LeBlanc were: Kurt Eiselt in AI who was later the builder of a strong

Student Services operation for the College; Richard Fujimoto in parallel and distributed simulation who later became founding director of the School of Computational Science and Engineering; Ashok Goel in AI and design, who was a mainstay of the AI group over the years; Larry Hodges in graphics who was a pioneer in virtual reality and co-founder of the Imaging Consortium, the forerunner of the GVU Center; Sham Navathe in data bases; Ashwin Ram in AI who was one of the earliest commercial entrepreneurs in CoC; Karsten Schwan in high-performance computing and operating systems, who later became co-founder of the Center for Experimental Research in Computer Systems; and John Stasko in visualization who was a leader in CoC and GVU.

In spite of these hires and others, occupying the new building in fall 1989, and all of the other routine business of the School, the headline activity was the campus-wide reorganization.

The Crecine reorganization.

Creating a college at Georgia Tech devoted to and leading a broad interpretation of computing is often credited to one person - the ninth President of Georgia Tech, Pat Crecine. Because of his background, from the time he came to campus he had the intention of creating something along the lines of the College of Computing.



Looking back, Slamecka's broad view of information (including linguistics, cognitive studies, and a focus on the end use of computing) prevailed in the early days from 1964 to around 1970 when the popularity of computing technology (design and creation of complex software, basic systems software, and related activities including computer science theory) brought modifications to the curriculum and research of ICS. When Miller came in 1980 with a mandate to create a strong computer science group, that viewpoint was dominant – but not to the extinction of the broader activities (e.g. AI, cognitive studies, visualization,

systems studies) most of which were strengthened through additional hiring and curriculum expansions under Miller's leadership.

As a result, the proposal for a broad College of Computing fell on fertile ground. The faculty that Slamecka, Miller, and Jensen had assembled beginning in 1964 and the growing national reputation in research that many of them were creating was already broader in its teaching and

faculty research capacity than many computer science (CS) units around the country in 1988. When Crecine initiated a major academic reorganization of campus, the ICS faculty was ready to expand its influence beyond just their School, and several of the senior members played key roles in planning the reorganization.

John Patrick "Pat" Crecine (1939-2008).

Born in Michigan, he earned three degrees in industrial administration at Carnegie Mellon University (CMU). As a student of Herbert Simon, he was imbued with a very broad view of computing and was by nature a visionary person. He was an innovator from the start of his academic career at the University of Michigan. After returning to CMU as a dean and later provost, he had intimate experience with the first college level computer science unit and helped lead the computerization of the campus that earned national attention (and personal friendship with Steve Jobs and other innovators). He is generally credited as being one of three people responsible for bringing the 1996 Olympics to Atlanta.

Crecine formally proposed a reorganization of campus in the summer of 1988, in a manner that gave the effort a poor start. There was general faculty protest on campus on procedural grounds that the faculty had not been consulted in advance, but more strenuously because many objected to some of the proposed changes on substantive grounds – not the least of which was the elevation of the small and seemingly insignificant ICS School. The College of Management objected perhaps most strongly to the part of the proposal to combine them with a broader liberal arts college, but there were also other parts of campus that didn't see the need for changing the academic structure.

Crecine set up committees to study various aspects of what "a technical university for the 21st century" should be. One of these committees was charged with investigating whether GT should have a "College of Information, Computer, Cognitive Sciences" and Jensen (ICS) and Jim Craig (Aerospace) were chosen to co-chair the committee with LeBlanc, Enslow, and other ICS faculty. The committee, composed of faculty from all areas of

campus, discussed a number of alternative ideas over the next few months until a decision was made in early 1989 to call the new computing-oriented unit the College of Computing. The campus vote on the creation of the College of Computing was narrowly in favor, due at least in part to the influence of the national Denning Committee's report.

At that point a Transition Committee, co-chaired by LeBlanc and Craig, was set up to plan the organization and substantive focus of the new college. This laid the groundwork and set the tone for later expansion. It is notable that several faculty members from other schools at Tech participated in positive and constructive roles on both committees.

During 1989-90, as the shape and content of the new College became clear, several people were brought to campus as "consultants" to the Transition Committee, in effect for informal interviews to be dean. In April 1989, an offer (accepted on May 1) was made to the author to be the Founding Dean and a Professor.

Over the next two months he began meeting with Jensen and LeBlanc, all of the faculty, many key players around campus, and some students. The Georgia Tech administration began involving him in budgetary and other significant decisions immediately, showing strong support.

On July 1, 1990, the College of Computing officially came into existence. At that point, the efforts of Crosland, the vision and hard work of Slamecka, the focused leadership of Miller, the long-standing, quiet leadership of Jensen, and the efforts of dozens of faculty and staff were realized in an academic unit with a broad mission to lead, not own, computing at Georgia Tech.

Postscript: There were many other events during the tumultuous two and a half years from the arrival of Crecine to the formal start of the College, but those details are better left to others to explicate. Narrative descriptions of successive periods in the history of CoC will be posted at this site as they become available.

PRIMARY SOURCES FOR THIS ARTICLE

College of Computing Master Timeline, <http://tinyurl.com/q4mdxrz>, 2015.

Compiled in 2014-15 by Founding Dean Peter Freeman and the efforts of a number of people acknowledged there, it is based on previous timelines, interviews, videos, contributions, and numerous original sources. As of Spring 2015 it contains entries from 1945-2014, most of which are based on accessible records. It is intended to serve as a basis for a continuously updated historical record for anyone wishing to dig more deeply into the history of the College of Computing and its predecessors.

Video Interview with Vladimir Slamecka, <http://tinyurl.com/q32eqsb>, 1998.

This interview of almost two hours provides a fascinating account of a personal history that began in Czechoslovakia before WWII, played out in five countries on three continents as a refugee, student, researcher in a very early software company, and founding director of what later became the College of Computing.

Memoir of Ray Miller, <http://tinyurl.com/k2br8f3>, 2002

Written on the occasion of his retirement from the University of Maryland in 2002, Chapter 7 of this account provides a first-hand account of his years as Director of ICS.

The Dorothy Crosland Story, <http://tinyurl.com/q5nbct4>, 2001

Short video on her life and accomplishments.