

Memories From the SEAS Time Capsules

The Thirteenth Decade: 1985-1994



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From the SEAS Time Capsules

The Thirteenth Decade: 1985-1994

Engineering gets \$20M grant

The National Science Foundation (NSF) announced yesterday that it will grant Columbia's School of Engineering and Applied Sciences \$20 million over the next five years to create a national center for telecommunications research.

The gift will enable Columbia to expand its eight member telecommunications department into a center which will staff 18 faculty members and 20 to 40 graduate research assistants. When completed, the center will be the largest telecommunications center in the country, according to Mischa Schwartz, professor of electrical engineering, who will be director of the new center.

On May 1, the University will receive \$2.2 million to establish the center. Next January, NSF will examine the center's progress, and decide how much money to award for the next year. The \$20 million will be spent by the end of the five year period, after which funding for the program will continue "if we do a good job and Congress is willing," according to Dean of the Engineering School, Robert Gross.

Thomas Stern, electrical engineering professor, will be the technical director of the center. He said that money from NSF will help to pay for a full-time research staff and expensive equipment that the University could not afford otherwise.

Professors currently doing research in different fields of engineering will work together on interdisciplinary projects.

- SEAS faculty are awarded a grant from the National Science Foundation to establish the Center for Telecommunications Research (CTR), as reported in the April 4, 1985 *Spectator*.
- This is among the first of several large centers established in SEAS and between SEAS and other schools at Columbia, and helps the school grow and excel.



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State budget increasing CU funds by over \$2 M
\$1 million goes to establishing a new engineering building

The budget agreed upon earlier this week by the state legislature and Governor Cuomo will increase state funds to Columbia by over \$2 million, which includes \$1 million for the planning and design of a new engineering building to be constructed between Pupin and Mudd halls.

"Looking at Columbia's needs, I'd give this year's state budget an A minus," said William Polf, director of state relations. "We are ecstatic about the planning grant and the Bundy aid increase, but we're very dissatisfied with the TAP (Tuition Assistance Program) situation."

Absent from the budget, however, was the \$85 million increase in the Tuition Assistance Program that had gained considerable support in the legislature earlier this year. Polf attributed the absence of the TAP increase to the personal income tax cuts included in the state spending plan.

"Their decision on TAP doesn't represent an antagonism to the program," Polf said. "It just came down to being more money than they had after they'd put so much effort into the tax cuts."

Engineering Dean Robert Gross said that the new 200,000 square foot engineering building will house the recently established telecommunications center as well as the computer science and micro-electronics facilities.

"We are absolutely delighted about this," Gross said. "It will be good for the entire northern end of campus and for scientific research at Columbia."

Gross said that he expected further state funding for the construction of the building and estimated that it would be completed sometime in 1989.

- New York State gives money to help Columbia plan and design a new engineering building between Mudd and Pupin, as reported in the April 5, 1985 *Spectator*.
- This leads to building the Schapiro Center for Engineering and Physical Science Research (CEPSR).



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'Educational' TV takes classes beyond campus

By KALI ZIVITZ

Ever feel like your professors deserve to be on television? If you're an engineering or computer science student, they just might be.

New this semester, the Columbia Video Network (CVN) broadcasts both live transmissions and videotapes of six engineering and computer science classes to employees at five companies throughout the tri-state area.

Under the aegis of the program, about 200 professional engineers work full-time and pursue master's degrees in computer science, electrical engineering and materials science without ever setting foot in Morningside Heights.

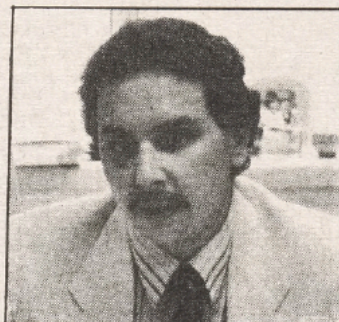
Columbia charges program participants the \$384 per point tuition fee standard for on-campus students plus a video surcharge of \$115 per

point. Participating companies receive videotapes of the classes as well as notes and homework assignments, while employees of two of the companies—Bell Labs and IBM—can ask questions by means of a live video hook-up.

Associate Professor of Computer Science Sal Stolfo, who teaches one of the videotaped classes, said he is not bothered by the videocameras or the six television monitors in the classroom.

"It's no different than teaching very large classes," he said, although he must wear a microphone and direct the cameras to where he is pointing.

The classrooms are arranged with screens and cameras attached to the ceiling. The cameras are controlled by operators who work from a small



SPECTATOR/REBECCA FRIEDMAN
Sal Stolfo

room attached to the main classroom, and are able to observe through a large window.

Some students said the cameras and screens initially disrupted the classes. Others in the classes being videotaped questioned the cameras' effect on the content of the lectures.

"He [Stolfo] is a salesman by nature, and what he is trying to do is sell artificial intelligence to Bell Labs," Dariusz Szwarczewicz, SEAS '87, said.

See COMPUTERS, 10▶

- 1986 – SEAS launches the pioneering Columbia Video Network, CVN, in the fall semester.
 - This helps SEAS meet the post-undergraduate learning needs of those in industry, without needing to send faculty to teach off-site. Students can earn masters degrees without coming to campus.
 - CVN is initially offered to corporations within 75 miles, usually by sending the VHS tapes recorded by the faculty teaching on-site students.
 - The program expands and adapts to new changes in distribution technology.
- Shown, the Sept. 24, 1986 *Spectator* article on CVN.



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New York Moments

The Thirteenth Decade: 1985-1994



- September 10, 1988 – The American Museum of the Moving Image opens in Astoria, Queens.
 - It is devoted to the art, history, technique and technology of film, television and digital media.
 - It is later renamed The Museum of the Moving Image.
 - Shown, in 2011 after renovation.



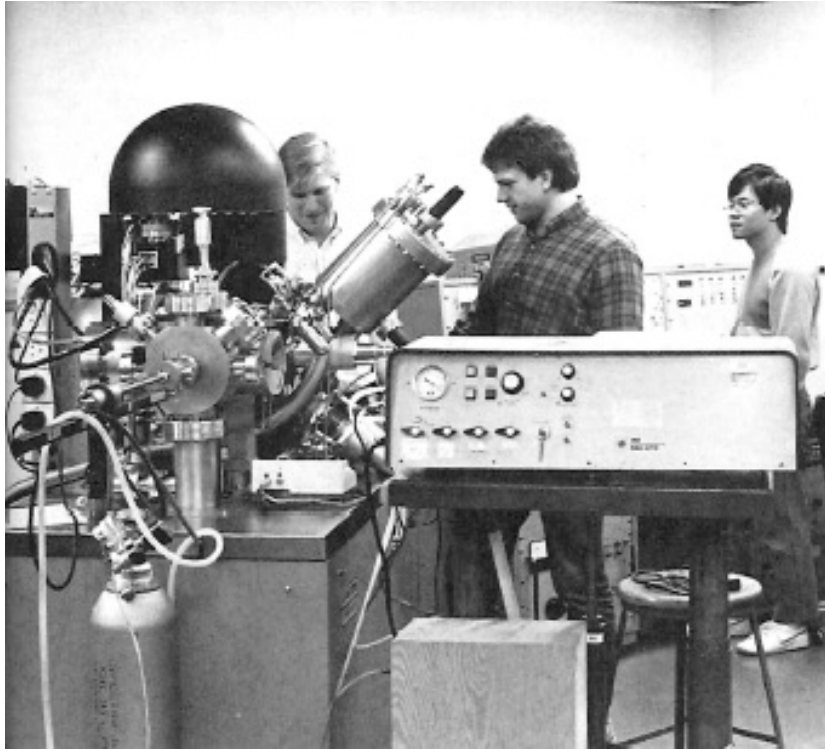
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The Thirteenth Decade: 1985-1994



- Complex laboratory instrumentation is increasingly used to probe and modify materials, such as this ultra-high vacuum surface science apparatus in which samples can be irradiated by an excimer laser; photo from the 1988 *Columbia Engineer* yearbook.
- This work helps usher in the era of microelectronics science and nanoscience research in SEAS.



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The Thirteenth Decade: 1985-1994



- Created in 1965 by Columbia undergraduates, Double Discovery works to help students from under-served backgrounds pursue higher education.
 - Columbia students help 12-27 year olds graduate high school, enroll and succeed in college, and prepare for careers and responsible adulthood.
- SEAS involvement is highlighted in the Winter 1988 *Engineering News*; the photo is from that issue.



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The Thirteenth Decade: 1985-1994



- The University administration (“Low Library”) adopts a new business model in the late 1980s, in which each school is a quasi-independent revenue and expense center.
 - While initially thought to be hurtful to SEAS, it proves to be one of the engines that enables great progress in SEAS beginning in the 1990s.



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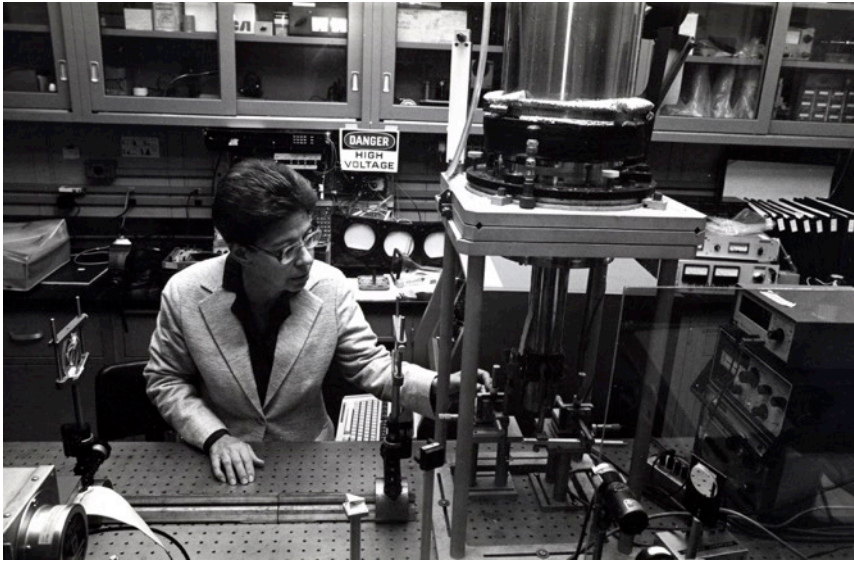
The Thirteenth Decade: 1985-1994



- Laptops and portable computers take off.
- Shown,
 - Epson HX-20 portable computer, the first laptop and portable computer, in 1981.
 - Compaq SLT/286, with the first VGA screen, in 1988; costs \$5,399 in 1990.

From the SEAS Time Capsules

The Thirteenth Decade: 1985-1994



- 1988 – Prof. Gertrude Neumark develops the process of non-equilibrium doping that enables great improvements in light-emitting and laser diodes, particularly in the blue-green region.
- Her 1990 and 1993 patents are used by many companies for improving consumer products, including sharper laser printers, increased DVD storage capacity, advanced traffic lights, mobile phone screens, and flat-screen TVs.



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New York Moments

The Thirteenth Decade: 1985-1994



- 1989 – *Seinfeld* begins its first of nine seasons portraying the unusual life of “prototypical New Yorkers.”
- Tom's Restaurant, a diner at 112th Street and Broadway, is used as the exterior image of Monk's Café in the show. It is the ground floor of Columbia University's Armstrong Hall (named after the legendary SEAS professor Edwin H. Armstrong), which houses NASA GISS (Goddard Institute for Space Science) - which has long-standing strong ties with SEAS and APAM.



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http://wnct.images.worldnow.com/images/4117209_G.jpg

<https://www.flickr.com/photos/wallyg>

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The Thirteenth Decade: 1985-1994



- 1989 – Celebration of the SEAS 125th anniversary at the Waldorf-Astoria, as reported in the Winter 1989 *Engineering News*, with Columbia Engineering School Alumni Association (CESAA) President Guy Longobardo and Egleston medalists Weldon S. Booth and Seymour J. Sindeband.



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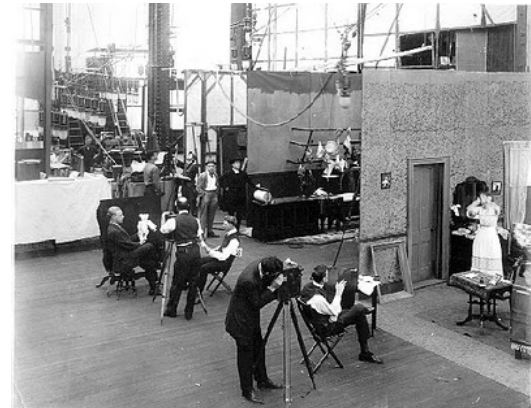
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New York Moments

The Thirteenth Decade: 1985-1994



- New York City, long a magnet for movie and TV show production, sees increasing filming on the streets of New York.
- 1990 – *Law & Order*, beginning the first of its 20 seasons, is part of this renaissance.
 - When gunfire is heard on the streets of New York, it may well be because *Law & Order* is being filmed.



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The Thirteenth Decade: 1985-1994

CEPSR construction still on schedule

Construction on the Center for Engineering and Physical Science Research (CEPSR) is on schedule and should be completed by the end of this year, according to Dean of the School of Engineering and Applied Science (SEAS) David Auston.

The building will provide increased space and new technology for SEAS research programs, according to Director of the Microelectronics Sciences Laboratories Rick Osgood.

“We’ll just have a facility which will be much more compatible with the research we’re doing,” Osgood said.

CEPSR will largely be divided among four campus research groups: The Center for Telecommunications Research, Computer Science, Microelectronics Sciences Laboratories, and Condensed Matter Physics, Spielman said.

Other groups using the building will be the New York Center for Advanced Research and an intelligence research group, she added.

The building will house offices, auditoriums, research space, a clean room, and a boiler plant which will power most of the campus, particularly the north end.

The clean room will allow research to take place in a dirt-free environment, which research programs have needed, Osgood said.

- Construction of the Center for Engineering and Physical Science Research (CEPSR) is underway, as reported in the Jan. 25, 1991 *Spectator*.



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- 1991 – The research of Prof. Dimitris Anastassiou (shown) and Ph.D. student Fermi Wang '91 becomes part of a key MPEG-2 patent that is instrumental in implementing international video standards broadly used in digital video, DVD, and Blu-Ray.

From the SEAS Time Capsules

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SEAS initiates new required course

By Greg Langmead
Spectator Staff Writer

First-year students in the School of Engineering and Applied Science (SEAS) are taking a new required course called Introduction to the Professions of Engineering and Applied Science, according to Professor of Applied Physics and former Dean of SEAS Robert Gross.

The one credit class, commonly known as "Intro to Engineering," consists of lectures by professional engineers from different fields of study and is designed to help students choose their major, Gross said.

"That is our attempt, to bring the students into some closer view of what is happening in professions," he said.

First-year students typically take required basic classes which are not specifically engineering courses, he said.

"It's often a long time before a student even has a class in the Mudd building," DeCarbo said.

- SEAS students had typically taken courses exclusively at Columbia College during their first two years. To introduce them to SEAS earlier, a new course is developed, "Introduction to the Professions of Engineering and Applied Science," which is required of all first-year SEAS students, as reported in the Feb. 1, 1991 *Spectator*.
- The course is offered for only a few years, before it is replaced by other programs with the same goal.



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CC, SEAS merge admissions offices

By Stephanie J. Geosits
Spectator Summer Board

Columbia College and the School of Engineering and Applied Sciences (SEAS) are combining their admissions and financial aid offices in order to better represent the University as a whole to incoming students and high school guidance counselors.

- The separate undergraduate admissions offices of SEAS and Columbia College merge, as reported in the July 1, 1992 *Spectator*.
- This enables integrated recruitment, while maintaining distinct admitted classes for the two schools.
- The change increases the number of applications and the admissions selectivity and yield for both schools.



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- 1992 - Kevin Patrick "Chilli" Chilton (1977 M.S. in mechanical engineering) is due to pilot flight STS-49, the maiden voyage of Space Shuttle Endeavour in May, 1992 (second from the left in the lower photo), as reported in the Spring 1992 *Engineering News* (and noted in the Winter 1993 *Eng. News*).
 - He was also on two later space shuttle flights: STS-59, as pilot on the Space Radar Laboratory (SRL) mission (April, 1994), and STS-76, as commander on the third docking mission to the Russian space station Mir in 1996, and overall logged more than 704 hours in space.
 - Chilton was promoted to the rank of four-star General in the U.S. Air Force, and was Commander, U.S. Strategic Command from 2007 to 2011.



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Schapiro Research Center opens

Cuomo attends CEPSR dedication ceremony



- 1992 – Schapiro CEPSR is dedicated, as reported in the Sept. 17, 1992 *Spectator*.
- Morris A. Schapiro (right), CC '23 and SEAS EE '25, donated \$10 M toward CEPSR construction (and in 1988 he helped build the Schapiro Dormitory).
 - New York State helped to finance CEPSR with grants and loans.
 - Dean Robert Gross spearheaded the CEPSR project (dedication below).



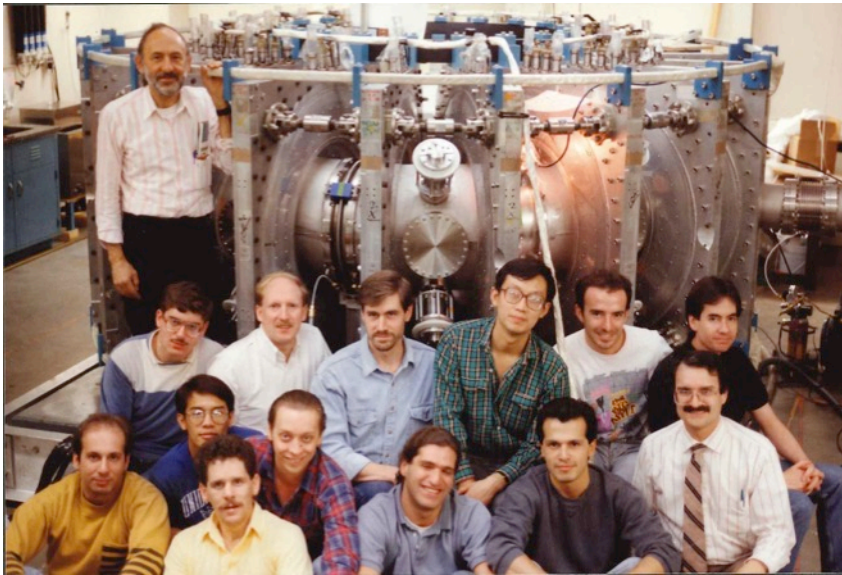
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- 1993 – The High Beta Tokamak-Extended Pulse (HBT-EP) is completed by Profs. Gerald Navratil and Michael Mael. It is the third and largest in a series of tokamaks built at Columbia. Tokamaks are torus-shaped reactors in which plasmas are confined by magnetic fields; they are promising as fusion energy reactors.



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Year	e-mails per week	Year	Columbia web hits
1991	37,600	1994	3,580,000
1992	55,400	1995	63,051,290
1993	82,700	1996	121,977,400
1994	188,900	1997	242,023,100
1995	299,600	1998	350,233,000
1996	442,900	1999	496,350,208
1997	586,784	2000	782,613,655
1998	798,688	2001	975,530,540
1999	1,100,000	2002	1,203,698,999
2000	2,400,000	2003	1,347,966,061
2001	3,460,000	2004	1,394,513,293
2002	3,960,000	2005	1,425,516,685
2010	14,000,000		

- The internet takes off at Columbia*
- Jan.-Apr. 1994 – The Columbia website debuts.
- Summer 1994 –
 - Most residence halls are wired for Ethernet: Carman, Furnald, Hartley, John Jay, Wallach (Livingston), and Wien (Johnson).
 - The first electronic classrooms are set up.



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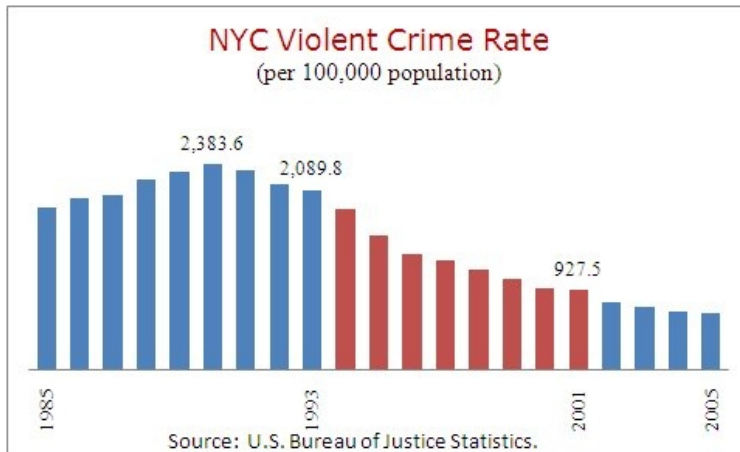
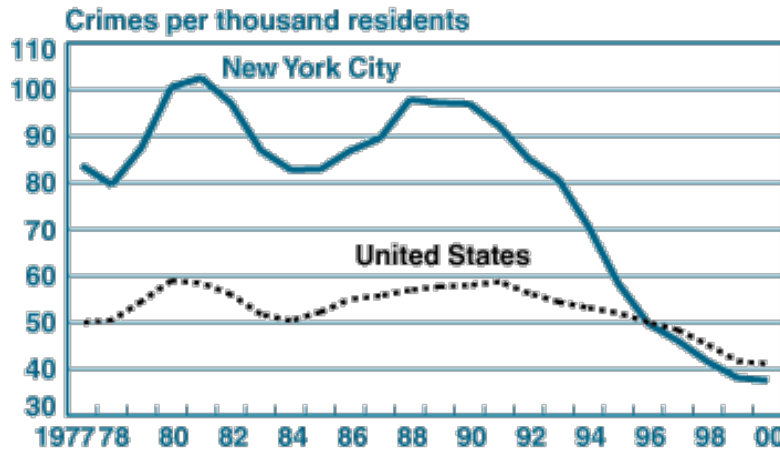
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* <http://www.columbia.edu/cu/computinghistory/>

New York Moments

The Thirteenth Decade: 1985-1994



- In the early 1990s the rates of crime and violent crime in New York City begin to plummet.

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The Thirteenth Decade: 1985-1994

Student center, a la carte cafe to open in Mudd

A renovated student lounge, featuring *a la carte* food service, and a student center for School of Engineering and Applied Science (SEAS) students are scheduled to open in mid-October in Mudd Hall.

The newly-renovated Carleton Lounge, which is adjacent to the building's campus-level entrance on the fourth floor, will house a Dining Services branch, offering students the opportunity to buy food with dining dollars.

According to Columbo, dining services workers surveyed engineering students to create a menu that meets the needs of the SEAS student population.

- The opening of the Mudd café is part of a campus-wide decentralization of eateries of campus, a departure from student eating areas being exclusively in dormitories, as reported in the Oct. 3, 1994 *Spectator*.



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The Thirteenth Decade: 1985-1994

Multimedia class opens at SEAS

During the first session of a new multimedia class held in the recently-opened Gateway Laboratory last night, students were able to view a mechanical engineering student's transformation of Leonardo da Vinci's two-dimensional sketches of flying machines into a dynamic, three-dimensional winged figure racing through space.

The class was introduced as a requirement for all first-year School of Engineering and Applied Science (SEAS) students this year, in an effort to acquaint them with virtual reality modeling technology and its application to the engineering sciences.

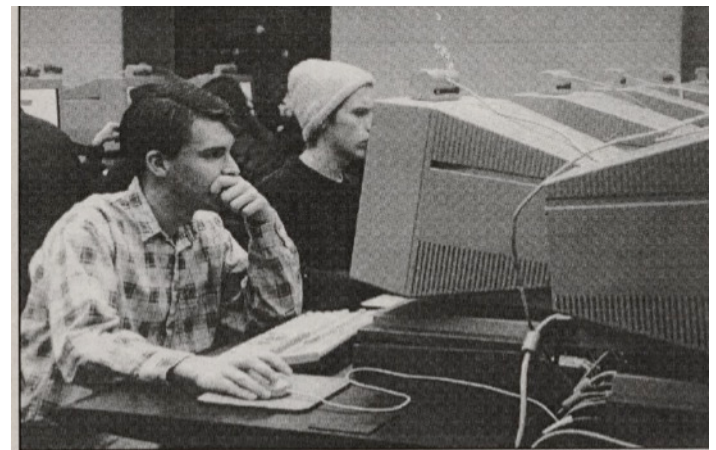
The laboratory is open to all undergraduate engineering students and to other Columbia undergraduates registered for engineering courses that use the laboratory.

The two-hour class, which meets once a week, is divided into a lecture and a laboratory period. In addition to learning how to use the software at the Gateway lab, students will learn to navigate the Internet.

The class is taught by Professor of Civil and Mechanical Engineering Morton Friedman, Manager of Systems Development for the Civil Engineering Department Vince Liggio, SEAS '92, and three teaching assistants.

"It's the first lab that provides the type of software that we have available, which is very high-tech graphics software that has never really been provided to students before," Liggio said.

- The Gateway lab opens, as reported in the Nov. 15, 1994 *Spectator*.
- The Gateway lab is home to a new multimedia course required for first-year SEAS students.



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