

## Attachment X

# Stephen Lukasik, 88, Who Pushed Tech in National Defense, Is Dead

He oversaw the Defense Department's research division in the 1960s and '70s, when it made great early strides in nuclear-device detection, artificial intelligence and computer networking.



Image

Stephen Lukasik, right, received a Defense Department award from Secretary James R. Schlesinger in 1974. Dr. Lukasik, director of the department's research division, strove to apply advanced technology to national defense. Credit Department of Defense

By [Katie Hafner](#)

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Stephen Lukasik, a physicist who oversaw crucial work on national security and computer networking as director of the Defense Department's research division in the late 1960s and early '70s, died on Thursday at his home in Falls Church, Va. He was 88.

The cause was respiratory failure, his wife, Virginia, said.

Dr. Lukasik (pronounced loo-KAY-sik) spent eight years at the department's Advanced Research Projects Agency, known as ARPA, a period when great strides were made in detecting and controlling weapons of mass destruction — particularly nuclear devices — as well as in computer networking and artificial intelligence.

Dr. Lukasik's work at ARPA helped spur the growth of a worldwide network of seismographs to detect nuclear explosions, helping to plant the seeds for what became the Comprehensive Nuclear-Test-Ban Treaty in 1996.

He was an ardent champion of using advanced technology to promote national defense, including the Arpanet, the precursor to the internet, which was built during his tenure as ARPA director.

In a [1991 interview](#) with the University of Minnesota's Charles Babbage Institute, Dr. Lukasik said that one of his major goals was to transfer ARPA's work to the military services. "Whatever it is you're trying to do, it's got to get out of the research labs," he said.



Image

Stephen Lukasik in 1971. "Why don't you guys do something interesting? Like, fixing it so computers can understand speech?" he told a group of artificial intelligence researchers. Credit Department of Defense

He required ARPA researchers to develop technology with applications to military command and control systems. “It wasn’t just, ‘Gee whiz,’ and patting them on the back,” he said. “It was understanding what they’re doing, grasping its implications and relating that to the world of problems that the Defense Department either had or would be facing.”

Dr. Lukasik’s interest in artificial intelligence, for example, was driven by his national security concerns. In the early 1970s, while attending a meeting of ARPA-funded A.I. researchers, he grew impatient.

“I said, ‘Why don’t you guys do something interesting? Like, fixing it so computers can understand speech?’” he said in the Babbage interview.

His incentive at the time, he [wrote](#) in a reminiscence, was to assist the National Security Agency, which employed “vast numbers of transcribers and translators to make sense of a multitude of communication channels they monitored.” In one instance he had ARPA researchers work on using artificial intelligence to transcribe manual Morse code.

“In my view, he was one of the few people who really thought about how science and technology serve national security,” said Sharon Weinberger, author of “The Imagineers of War: The Untold Story of DARPA, the Pentagon Agency That Changed the World” (2017). “He saw the role of strategy, not just widgets or weapons to serve the Pentagon, but the bigger picture around it.”

Dr. Lukasik was an early champion of the Arpanet, which began as an experiment in computer networking. His contribution to the Arpanet, he wrote in 2014, “was helping to wrench this R&D project away from its creators, who would have liked to research it forever,” in part to promote military innovation.

Dr. Lukasik began using electronic mail in its earliest versions in 1973; indeed, he became known for running ARPA largely by email. Yet email also vexed him. Not one to throw anything away, he grew frustrated by the email piling up in his inbox.

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He complained to Lawrence Roberts, who ran ARPA’s Information Processing Techniques Office. “I said, ‘Larry, this email is great, but it’s a mess!’” he recalled in an interview for “Where Wizards Stay Up Late: The Origins of the Internet” (1996). “In typical Larry fashion he came in the next day, and said, ‘Steve, I wrote some code for you.’” It was the first email management program.

Stephen Joseph Lukasik was born on March 19, 1931, in Staten Island to Stephen and Mildred (Tynan) Lukasik. His father was an accountant, his mother a bank employee.

Stephen began reading scientific literature at age 10 and at 14 knew what direction his career would take after reading newspaper accounts of the atomic bomb attacks on Japan.

“I was really horrified by the human losses at Hiroshima and Nagasaki,” Dr. Lukasik said in an interview for this obituary in March. “So I read everything that I could and decided that, of all the sciences, physics was the one that answered the questions I wanted to know about.”

At 16 he entered Rensselaer Polytechnic Institute in Troy, N.Y., where he received a bachelor’s degree in physics in 1951. He received his Ph.D., also in physics, from the Massachusetts Institute of Technology in 1956.

While at Rensselaer, he met Marilyn Trappiel, a chemistry student at nearby Russell Sage College. They married in 1953 and divorced in 1982.

In 1955, while a doctoral student, Dr. Lukasik joined the Westinghouse Electric Corporation as a scientist at the company’s Bettis Atomic Power Laboratory, outside Pittsburgh.

His work attracted the attention of the Defense Department, and he joined ARPA in 1966 as director for nuclear test detection. He became the agency’s overall director in 1971.

After leaving ARPA, he worked in security-related positions at the RAND Corporation, Northrop, TRW and elsewhere. He became chief scientist at the Federal Communications Commission in 1979.

While at the F.C.C., he met Virginia Dogan Armstrong, a policy analyst. They married in 1983. In addition to her, his survivors include four children from his first marriage, Carol Ward, Elizabeth O’Masta and Gregory and Jeffrey Lukasik; two stepchildren, Elizabeth Armstrong Parker and Alan Armstrong; 11 grandchildren; and 3 great-grandchildren.

So abiding was Dr. Lukasik’s interest in national security and technology that he amassed a personal library of about 10,000 books relating to every dimension of those subjects.

Internet security breaches remained a worry. “Even if by some miracle governments and industry worldwide were to agree on a course of action to remove threats to the net,” he [wrote in 2011](#), “groups such as criminals benefiting from the current state of insecurity are unlikely to cooperate.”

Anthony Rutkowski, a longtime colleague, recounted that while on a flight home from a meeting in Europe 18 years ago, he read a draft of a paper that Dr. Lukasik had given him. In it, Dr. Lukasik outlined ways that the internet could be used to coordinate a major infrastructure attack on the United States.

“The detail was stunning,” Mr. Rutkowski recalled. The date was Sept. 11, 2001. His plane turned around, mid-Atlantic, and returned to Europe.

Katie Hafner, a former staff reporter for The New York Times, is the author of "Where Wizards Stay Up Late: The Origins of The Internet."

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