Dennis K. Branstad, an internationally recognized expert in information security technology, died September 11, 2019. He was 79.

Dennis' first affiliation with NBS was in 1972, while he was still an employee at NSA, that led to an IEEE/ NBS workshop on Controlled Accessibility. When he joined the NBS Institute for Computer Science and Technology in 1973, he initiated the Controlled Accessibility project which became the foundation of today's NIST Computer Security Program. The first computer security documents issued by NBS were developed during this time.

Dennis' development of the Data Encryption Standard—the first publicly available cryptographic algorithm to protect unclassified information and systems (government and private sector)—literally changed the future of the cyber security world. DES became for some time the world's most widely used encryption algorithm and it served as a basis for several related NBS/NIST standards and guidelines as well as several ANSI and ISO standards.

While use of cryptographic techniques to protect cyber space is commonplace today, most of these techniques have direct paths to the work Dennis started at NBS—including DES, password usage, computer data authentication, digital signatures, and secure hash functions. He also developed a hardware/software validation test facility to test vendor implementation conformance with the DES standard. Den- nis was co-founder of the joint NBS-NSA Annual National Computer Security Conference which ran for over 20 years and was the premier and largest computer security conference in the world.

After retiring from NIST in 1994, Dennis joined Trust- ed Information Systems (TIS) as a director of cryptographic technology research. He won several research grants and received several patents in computer security and digital cryptography while at TIS. He also continued at NIST as a research associate in the Computer Security Division.

Dennis received numerous awards, honors and recognition for his work. He was an NBS/NIST Fellow and the recipient of both a Silver Medal Award (1975) and Gold Medal Award (1980) for his early outstanding technical contributions and authorship in the field of computer security.

In 2002, Dennis was inducted into the NIST Portrait Gallery in recognition of his extensive body of work in computer cryptography and information security research.

Dennis Keith Branstad was born and raised on a farm east of Leland, IA that was purchased by his grandfather around 1905. The farm is still owned and operated by fourth-generation direct descendants. He received a B.S. in mathematics from Iowa State University (ISU) in 1961. Because of his ROTC commitment, he was commissioned in the U.S. Air Force and ordered to report to Fort Meade, MD. There he joined the NSA Mathematics Research Di- vision. After three years in the Air Force, he was hired as a civilian in the Speech Research Division and later in the Computer Science and Computer Security Divisions.

In 1967, Dennis was awarded a fellowship to return to ISU where he received a M.S. (1968) and Ph.D. (1970) in computer science. In December 1970, Dennis and Martha Marks were married. Martha had also received her Ph.D. in computer science and became a professor of computer science at ISU. Dennis and Martha moved to Beltsville, MD in 1971.

Dennis is survived by his wife, Martha (also a former NBS/NIST employee), their two daughters and six grandchildren.

Sources: NIST archives and <www.forestcityeducationfoundation.org>.

Source: <u>Standards Alumni Association Newsletter</u>, March 2020 (Vol. 36, No.1), page 25.