

## **Memorial Resolution for Prof. Donald Hillman**

It is with great sadness that we enter this memorial resolution for our colleague and friend Donald Hillman, Professor Emeritus of Lehigh's Computer Science and Engineering Department and a distinguished scholar of information retrieval, who passed away peacefully in this October surrounded by his loving daughters at St. Luke's Hospice House [1].

Professor Donald Hillman was considered one of the leading scholars in online information services.

Don worked on LEADER (Lehigh Automatic Device for Efficient Retrieval) throughout the 1960s [2][3]. The LEADER project was conceived by Don representing an approach to end-user-oriented online information retrieval system based on retrieval from the full text of documents. Don's project not only produced the LEADER system, but also contributed to the theory of information retrieval. He postulated that "an information storage and retrieval system should combine the functions of document retrieval, data retrieval, and reference retrieval, in order to be able to provide a variety of useful responses to different types of information inquiries." Don's work was far ahead of his time even in the fast developing information retrieval and related computer science fields. In an interview in 1987, it was asserted that "one could change the wording slightly of one of Hillman's early papers on LEADER, take it today to a conference on expert systems or artificial intelligence, and almost no one would know that it was a 20-year-old paper being recycled." [2].

In 1969, Don received a NSF grant of nearly one million dollars (\$967,500) [3] to develop LEADERMART, named after LEADER plus "MART", for the Mart Science and Engineering Library at Lehigh. It was the first fully functional public online service "developed with a general objective of promoting interdisciplinary research and encouraging interaction among the science and engineering disciplines, with services to professionals associated

with interdisciplinary academic research centers, as well as employees of agencies of the federal government and users in industry and business” [4].

Don was active in research in five decades before his retirement in 2012. He was one of the champions of the neXt Generation (XG) Communications Program of the Defense Advanced Research Projects Agency (DARPA), along with colleagues involved in the DARPA program, who proposed a process to develop a collection of ontologies that capture radio and network domain knowledge using a formal and non-procedural computer language with computer-processable semantics and associated reasoners. This objective was to enable and govern radio behaviors for Dynamic Spectrum Access so that “radios could roam the world while autonomously enforcing spectrum access rules according to the policies provided by the local spectrum governing authorities” [5].

Professor Donald Hillman was a true leader and a wonderful person. He was the Director of the Center for Information and Computer Science at Lehigh University from 1963 to 2001. Don was a father of the Department of Computer Science and Engineering, one of the founders of the original Computer Science division of the Department of Mathematics. He helped create a home-like atmosphere in the department that helped us see through both good times and challenging times.

“Donald Hillman was 86 years old. Born in London, England in 1931, Donald survived the Blitz on London, enduring 5 months of nightly air raids by the Nazis. He graduated from Cambridge University and the University of Pennsylvania earning his Ph.D. He fought in the Korean War and was commissioned as a Captain upon his discharge. He spoke 4 languages, shook Winston Churchill's hand, could paint, draw and cook like a pro; he played the guitar and was a master at the piano.” “He is survived by his three daughters; Stephanie of Bethlehem, Lisa (Mark) Piegza of Hilton Head, SC and Jennifer (Patrick) LaFrankie of Newark, DE as well as six grandchildren; Alexandra, Charles, John, Claire, Aidan and Stewart and two nieces; Susan Goldstein and Michele McLaughlin.” [1]

## Reference

[1] <https://www.legacy.com/obituaries/mcall/obituary.aspx?n=donald-hillman&pid=190465131&fhid=9563>

[2] Trudi Bellardo Hahn and Michael Keeble (Editors), *Historical Studies in Information Science*, published by Information Today Inc, October 1998.

[3] Project Leadermart,  
[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=6901162&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=6901162&HistoricalAwards=false)

[4] Charles P. Bourne, Trudi Bellardo Hahn, *A History of Online Information Services, 1963-1976*, published by the MIT Press, August 2003

[5] *Mieczyslaw M. Kokar, Donald Hillman, Shujun Li, Bruce Fette, Preston Marshall, Mark Cummings, Todd Martin, John Strassner, "Towards a Unified Policy Language for Future Communication Networks: A Process," 2008 3rd IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks*, Chicago, IL, 2008, pp. 1-10. doi: 10.1109/DYSPAN.2008.74