Biomedical and Health Informatics Series
Tuesday, May 29th, Room T-739, 12:00-12:50

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"Order and Chaos in Medical Data Communication: DICOM and HL7"

Over 15 years ago, Radiologists and Medical Physicists recognized that the growth of the Internet and the computerization of radiology and radiation oncology would make carrying image data on magnetic tape or diskettes or CDs obsolete and inefficient. A joint committee of the American College of Radiology (ACR) and the National Electrical Manufacturers Association(NEMA) formed a committee to create a standard for network transmission and reception of medical image data. After some faltering its third iteration found huge success. Known as DICOM (Digital Image COmmunication in Medicine), it is supported by virtually every radiology and radiation therapy system vendor, and has several open source implementations, including one by the author's research group at the University of Washington. Similarly, various groups have attempted to accomplish similar success with the transmission of clinical laboratory data and other clinical information, resulting in a consortium called HL7 (Health Level 7). This talk will describe the two standards, the author's implementation of DICOM and an attempt to implement HL7. The strengths and weaknesses of each standard will be revealed, along with some ideas for future work.

Ira Kalet received a B.A. in physics from Cornell University in 1965 and a Ph.D. in theoretical physics from Princeton University in 1968. He held research and faculty appointments at the University of Washington Physics Department, the Robert Hutchins School of Liberal Studies at Sonoma State College, and the Graduate School of Education at the University of Pennsylvania before returning to the University of Washington in 1978 in the then newly formed Department of Radiation Oncology. In Radiation Oncology, he is known for his contributions to the art of radiation therapy planning software and was also responsible for building the department's initial network infrastructure. From 1997-2004, he led the creation of the Graduate Program in Biomedical and Health Informatics (BHI) and served as its founding Director. He is currently a Professor in the Radiation Oncology Department and the Department of Medical Education and Biomedical Informatics at the University of Washington School of Medicine. He is also an Adjunct Professor in the Department of Computer Science and Engineering, and the Department of Biological Structure at the University of Washington. Since September 2005 he has served as the Director of IT Security and Networking for the UW School of Medicine and its two major teaching hospitals, UW Medical Center and Harborview Medical Center. Dr. Kalet's research interests include computer graphic simulation of radiation treatments for cancer, computer control of radiation therapy machines, software development methodology and artificial intelligence applications to medicine, particularly expert systems, ontologies and modeling. More recently he has been interested in protocols for network exchange of medical data, and IT security in the health care environment. Dr. Kalet is a member of the American Medical Informatics Association (AMIA) and the American Association for Artificial Intelligence (AAAI).

The Biomedical and Health Informatics lecture series covers current topics and developments in Biomedical and Health Informatics. Presenters include faculty, students, researchers and developers from the University of Washington, other academic institutions, government, and industry (locally and nationally). The intended audience is the broader University of Washington and Seattle area community with an interest in BHI as well as BHI faculty and students.
Series Website: http://courses.washington.edu/mebi590/