

Seminar Series

Big Knowledge for Biomedical Ontologies



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Refreshments: 2:45 PM – 3:00 PM
Time: 3:00 PM – 4:00 PM
Location: GITC 4402



Abstract: The purpose of the Big Data to Knowledge initiative is to develop methods for discovering new knowledge from large amounts of data. However, if the resulting knowledge is so large that it resists comprehension, referred to here as Big Knowledge (BK), how can it be used properly and creatively? We call this secondary challenge, Big Knowledge to Use. Without a high-level mental representation of the kinds of knowledge in a BK knowledge base, effective or innovative use of the knowledge may be limited. We describe summarization and visualization techniques that capture the big picture of a BK knowledgebase, possibly created from Big Data.

Bio: Dr. James Geller is Professor and former Chair of the Computer Science Department at the New Jersey Institute of Technology (NJIT). He currently serves as Associate Dean for Research of the Ying Wu College of Computing at NJIT. He has published over 190 journal and conference papers and 14 book chapters in Medical Informatics, Semantic Web Technology, Object-Oriented Database Modeling, Knowledge Representation, etc. He was Co-Principal Investigator on several federal grants from NIH, totaling over \$2,500,000, on auditing methods, abstraction algorithms and software tools for important medical terminology systems such as the Unified Medical Language System (UMLS) and the Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT). From 2014 to 2019 he was co-PI on a major NIH grant on family-based quality assurance for Biomedical Ontologies. In 2012 Dr. Geller was inducted as a Fellow of the American College of Medical Informatics (ACMI). He is a founding participant of the BRAID Consortium of Harvey Mudd College and is actively involved in bringing women and minorities into the computing field. He received the NJIT Master Teacher Designation (2005) and three other NJIT teaching awards in 2002, 2003 and 2011.

Dr. Yehoshua Perl earned his PhD in computer science from Weizmann Institute in Israel in 1975. Dr. Perl has been working in the field of “medical terminologies” since 1993, following his earlier research achievements in algorithms and Object-Oriented Databases, which include five JACM papers (the top journal in Computer Science). Dr. Perl was awarded the Harlan Perlis NJIT Research Award in 1996 for his earlier research, and the NJIT College of Computing Sciences Excellence in Research Award in 2008 for his research in Biomedical Terminologies. In 2017, Dr. Perl received the NJIT Excellence in Research Lifetime Achievement Award for his work in medical terminologies. He is a co-director of SABOC (Structural Analysis of Biomedical Ontologies Center), which has established a strong research record on the design of structural techniques for partitioning, abstraction and quality assurance of many medical terminologies. Dr. Perl was awarded three R01 grants and four ARRA Administrative Supplement Grants totaling over \$4.5 million. He published more than 200 papers in top journals and conferences. Dr. Perl co-edited three special issues of JBI, on structural issues in UMLS research (2003) and auditing of terminologies (2009, 2018), reflecting his standing in the field. Dr. Perl served on the editorial board of the Journal of Biomedical Informatics (2011–2018). He is a Fellow of the American College of Medical Informatics (2011-).