中央研究院統計科學研究所

學 術 演 講

講 題： A Next Generation Healthcare Information System to Support Precision Medicine

演 講 人： Professor Emeritus Feipei Lai（賴飛羆 教授）
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時 間： 2025-03-03 (Mon.) 10:30-12:00

地 點： Auditorium, B1F, Institute of Statistical Science；The tea reception will be held at 10:10.

備 註： Online live streaming through Cisco Webex will be available.

Abstract

In this talk, I will disclose how we had been building up the gene-related information processing, life-style recorder, open environmental database and EMR mining infrastructure for precision medicine gradually since 2016. Precision medicine, an emerging approach for disease prevention, prediction and treatment that takes into account people's individual variations in genes, environment, and lifestyle data. We have built a gene-disease mutation viewer tool, called Mviewer, which can analyze the single nucleotide variants (SNVs) data with various annotations from different genome databases, as our preprocessing tools to decrease the numbers of candidate SNVs. Then, in this research, we describe a novel tool (AI Variants Prioritizer) based on GeneReviews, Online Mendelian Inheritance in Man (OMIM) and biomedical literatures (PubMed) to rank SNVs from Mviewer as well as the phenotype keywords automatically extracted from electronic medical records (EMRs) to get the most viable disease-causing candidates. On the EMR part, we have developed an auto ICD-10 auto-coder to transform the free text medical records to ICD-10 codes for the reimbursement from the health insurance program. On the life style part, we have developed an App that can be found in Apple Store and Google Play, called 台大醫神 (NTU Medical God), and a backend platform to record or infer the life style of the user which including, exercise, eat, drink behavior, vacation, religion, political party, sleep quality, walk distance, etc. On the environment part, we collect the open data from the Environment Protection Administration, Central Weather Bureau, and Water Resource Administration, Taiwan, as well as the airbox installed in the user's home to get the PM2.5, Temperature, Humidity data.

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