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BIOINFORMATICS SEMINAR
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TRANSATLASDB: AN INTEGRATED DATABASE CONNECTING EXPRESSION DATA, METADATA AND VARIANTS

Given the vast amounts of data generated by next-generation sequencing (NGS) data for the today's -omics era, the ability to efficiently manage the massive throughput from NGS analysis becomes a major challenge, especially when dealing with analysis data that range on a terabyte to petabyte scale. The constraint of accessing such data and interpreting results can be a major impediment in postulating suitable hypothesis, thus an innovative storage solution that addresses these limitations, such as hard disk storage requirements, efficiency and reproducibility are paramount. To this aim, we designed a hybrid (Relational & NoSQL) database framework, called TransAtlasDB, that addresses the crucial need for a smart and innovative storage solution for archival, management and retrieval of large-scale transcriptome analysis data output from transcript expression analysis with corresponding metadata, as well as gene-associated variants and their predicted gene effects. TransAtlasDB provides the data model of accurate storage of the large amount of data derived from RNAseq analysis and also methods of interacting with the database, either via the command-line data management workflows, written in Perl, with useful functionalities that simplifies the complexity of data storage and possibly manipulation of the massive amounts of data generated from RNAseq analysis or through the web interface. Overall TransAtlasDB aims to serve as an accessible repository for the large complex results data files derived from RNAseq gene expression profiling and variant analysis.

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THE HENN APP FOR ADDRESSING SUBSTANCE USE DISORDERS

Nowadays, substance use disorders (SUDs) and mental health affect people from all walks of life and all age groups. Though these diseases are common, recurrent and serious, they are still treatable with the help of related projects and treatment services. However, it's hard for patients to find the resources they need. With the convenience brought by smartphones and handheld devices, a mobile application can establish a platform which connects patients to the services. HeNN (Help Near & Now) is a smartphone app in Android and iOS platform that provides a GIS-based, interactive platform to connect people suffering from SUDs, and their families, to services where and when they need them. For providers and policy-makers, HeNN establishes a peer network by allowing users to provide comments on resources, which informs them about the utilization and effectiveness of services. For now, HeNN is a regional and beta testing mobile app, which focuses on offering help to SUDs around Delaware and surrounding area.