

Dear all,

We would like to share some further details with you about the Visual Analytics in Healthcare (VAHC) 2018 design challenge. Please see below for recommended themes, datasets, and information about the judging panel. The three selected winners of the challenge will be invited to submit their designs to a Special Topic in Visual Analytics of *Applied Clinical Informatics*. **As a reminder, submissions (no more than a 2-page PDF) are due by August 1<sup>st</sup>.** You can submit through EasyChair, here: <https://easychair.org/conferences/?conf=vahc2018>.

**Design Challenge:** the overarching goal is to present complex healthcare data in a clinically actionable way, through visualization. Any complex healthcare data is potentially applicable, although you may consider focusing on one of these three major themes:

- 1. Regular temporal series of clinical data:** examples include intensive care unit monitoring data, recurrent laboratory measurements, blood pressure over time as a function of treatment exposure.
- 2. Irregular temporal series of patient-generated data:** examples include home blood pressure monitoring, blood glucose measurements, app-based healthcare questionnaires.
- 3. High-dimensional -omic data:** examples include somatic tumor profiling, pre-natal and ante-natal Mendelian disease panels, and proteomics.

**Datasets:** we encourage the use of any healthcare-related data set, whether it be private or public. For those without ready access to private healthcare data sets, we would encourage you to use one of the following:

- **GENIE:** The AACR Project Genomics, Evidence, Neoplasia, Information, Exchange (GENIE) is a pilot project that seeks to identify and validate genomic biomarkers relevant to cancer treatment by linking tumor genomic data from clinical sequencing efforts with longitudinal clinical outcomes. Access it here: <https://www.synapse.org/#!Synapse:syn7222066/wiki/>.
- **MIMIC III:** MIMIC is an openly available dataset developed by the MIT Lab for Computational Physiology, comprising deidentified health data associated with ~40,000 critical care patients. It includes demographics, vital signs, laboratory tests, medications, and more. Access it here: <https://mimic.physionet.org/>.
- **PhARaoH Study:** The dataset consists of a densely phenotyped sample of multi-ethnic adults collected from March to August 2014 (n=436; 139 COPD and 297 apparently healthy adults). The dataset captures behavioural, physical and psychosocial individual characteristics on individuals with and without a confirmed diagnosis of chronic obstructive pulmonary disease (COPD). The dataset includes seven day raw (100Hz) wrist-worn accelerometry, venous blood biomarkers and non-invasive point-of-care cardio-metabolic risk profiles. Request to access it here: <http://www.lboro.ac.uk/research/mi-lab/research/pharaoh/pharaohconditionsofuse/>

**Judging panel:** the panel consists of experts from across the breadth of healthcare informatics:

- **Adriana Arcia PhD, RN** (Assistant Professor of Nursing at Columbia University): Dr. Arcia's research focuses on consumer health informatics, patient education, low health literacy as a health disparity, information visualization, women's preferences and decision making about childbirth, normal physiologic childbirth, and planned home birth. More here: <http://nursing.columbia.edu/profile/aarcia>.
- **Jonathan Hirsch MSci** (Founder and President at Syapse): Syapse drives healthcare transformation through precision medicine, enabling provider systems to improve clinical outcomes, streamline operations, and shift to new payment models. Syapse Precision Medicine Platform is a comprehensive software suite used by leading health systems to support the clinical implementation of precision medicine in oncology and other service lines. Jonathan's work includes catalyzing national cancer data sharing networks, serving on the White House Cancer Moonshot Data Sharing Working Group, and chairing the Data Committee for GBM AGILE, a global initiative to find a cure for brain cancer.
- **Harry Hochheiser PhD** (Associate Professor of Biomedical Informatics at the University of Pittsburgh): Dr. Hochheiser's research covers a range of topics, including human-computer interaction, information visualization, bioinformatics, universal usability, security, privacy, and public policy implications of computing systems. More here: <https://www.dbmi.pitt.edu/person/harry-hochheiser-phd>.
- **David Kreda BA** (SMART Project Translation Advisor, <https://smarthealthit.org>): Mr. Kreda has worked extensively with electronic medical record systems, medical informatics research, app design, and interoperability. He is involved in design work on representing the longitudinal medical record.
- **Lucila Ohno-Machado MD PhD MBA** (Professor of Medicine and Chair of Biomedical Informatics at the University of California, San Diego): Dr. Ohno-Machado is the outgoing editor-in-chief of JAMIA, where she has served since 2010. At UCSD, she is associate dean for informatics and technology and has experience leading multidisciplinary projects at the intersections of biomedicine and quantitative sciences. Her research group focuses on biomedical pattern recognition from large data sets, statistical learning, and privacy technology.