Dilsher Singh Dhillon

Statistician

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📍 Houston, TX

Biostatistician

Skills

Programming

Statistical Programming in SAS
Python
R
SQL

Statistics

Survival Analysis
Analysis of Categorical Data
Design of Experiments
Unsupervised Learning
Analysis of correlated data
Mathematical Statistics
Machine Learning

Biotechnology

Luminex bead based assays
ELISA
Tissue culture
Bacterial Cloning techniques
Human Biospecimen Collection (CLIA)
Gel Electrophoresis
Immunoflourescence

Education

Texas A&M University
MS Statistics 2017
MS Biotechnology 2012

Employment

Baylor College of Medicine — Houston, TX
Statistician — Jan. 2018 to Current

Identifying risk factors for poor outcomes in co-infected TB-HIV patients
• Data extraction
  o Worked with monitoring and evaluation officers in Africa to identify key variables to extract
  o Extracted longitudinal data for ~25000 subjects from 7 clinics in Sub-Saharan Africa during the time period 2006-2018
  o Cleaned, processed, run quality checks and check completeness of data to convert it into a usable format for analysis
• Statistical Analysis
  o Consulted subject matter experts to identify a priori list of variables that are hypothesized to be related to worse TB outcomes
  o Developed cox regression models (multiple models categorizing subjects according to Anti-retroviral therapy use) to identify risk factors associated with TB outcomes in HIV infected subjects
  o Presented findings of the project in the network wide meeting held in Johannesburg, South Africa (November 2018)

Managing the clinical research database
• Automated a pipeline in Python for merging of datasets from clinical research forms(CRFs) entered in eSwatini
• Run quality checks monthly on data extracted from the database
• Worked with database management team to remove redundancies across datasets reducing the size and number of variables to be extracted

Studying underlying epigenetic mechanism of TB infection
• Processed methylation data from EPIC arrays consisting of ~850,000 individual probes using the minfi package from Bioconductor
• Produced exploratory data analysis reports consisting of heatmaps, violin plots

University of Texas MD Anderson Cancer Center — Houston
Research Investigator — Apr. 2016 to Jan. 2018

Promoted to a supervisory capacity to oversee assay development of novel biomarkers and testing of in-house and commercial assays in clinical samples for validation
Manage CLIA facility for sample collection for validation of blood based biomarkers
Formulate final biomarker panel of autoantibodies in response to aberrantly expressed proteins in plasma and serum/plasma of lung cancer subjects
Maintaining a bio-repository of multiple pre-diagnostic, diagnostic and diseased subject samples to be used for the final validation of the down selected biomarker panel

Sr. Research Assistant — Houston
Jan. 2013 to Mar. 2016

Translated two ELISA assays for proteins differentially expressed in lung cancer into a bead based assay using the Luminex MagPix platform and achieved higher sensitivity and better inter-assay precision through development and optimization
Executed an expanded panel of 34 protein biomarkers for lung cancer assembled into in-house as well as MilliPlex designed panels on various pre-diagnostic and diagnostic lung cancer subjects
Contribute to down selecting a panel of proteins, miRNAs and autoantibodies to develop a biomarker panel in multiple diagnostic, pre-diagnostic subjects and patients from the initial expanded set of biomarkers

Projects

Forecasting Red Light Camera Violations in Chicago — May 2017 to Oct. 2017

Develop a regression model to predict red light camera violations in the Chicago
• Obtained data for red light violations for each camera ID in the city of Chicago from the beginning of 2014
• Expanded the dataset to impute missing camera IDs using intersection names and included dummy variables for all Chicago neighborhoods based on the co-ordinates of each Camera ID in order to use these neighborhoods as potential predictors
• Using the 'rnoaa' package in R, downloaded weather data for the Chicago Midway Airport and the Chicago O'Hare Airport which includes potential predictors such as snowfall, precipitation, wind speed, visibility in addition to temperature conditions on a daily basis from the start of 2014

Testing Efficacy of Horn Fly Counts in Cattle — Jan. 2017 to Apr. 2017

• Cleaned and pre-processed dataset obtained from client for horn fly counts over 26 weeks in cattle across 15 counties in Texas
• Developed a repeated measures mixed effects model to analyze outcomes of pesticides treatment under the assumption that the counts are correlated with each other
• Prepared a client report summarizing research goals, exploratory data analysis, statistical methods and key findings of the analysis. In addition, provided suggestions on how to improve experimental design in order to have greater power to detect differences

Awards

Texas A&M University · Regents Fellowship — Aug. 2010

International Student Services, Texas A&M University · International Education Scholarship — Sept. 2011

Custom Section 1

Publications

Guida F, Sun N, Bantis LE, Muller DC, Li P, Taguchi A, **Dhillon D**, Kundnani DL, Patel NJ, Yan Q, Byrnes G, Moons KGM, Tjønneland A, Panico S, Agnoli C, Vineis P, Palli D, Bueno-de-Mesquita B, Peeters PH, Agudo A, Huerta JM, Dorronsoro M, Barranco MR, Ardanaz E, Travis RC, Byrne KS, Boeing H, Steffen A, Kaaks R, Hüsing A, Trichopoulou A, Lagiou P, La Vecchia C, Severi G, Boutron-Ruault MC, Sandanger TM, Weiderpass E, Nøst TH, Tsilidis K, Riboli E, Grankvist K, Johansson M, Goodman GE, Feng Z, Brennan P, Johansson M, Hanash SM Assessment of Lung Cancer Risk on the Basis of a Biomarker Panel of Circulating Proteins (JAMA Oncology 2018)

Shiels MS, Kirk GD, Drummond MB, Dhillon D, Hanash SM, Taguchi A, Engels EA HIV Infection and Circulating Levels of Prosurfactant Protein B and Surfactant Protein D (Journal of Infectious Diseases 2018)

Çeliktas M, Tanaka I, Tripathi SC, Fahrmann JF, Aguilar-Bonavides C, Villalobos P, Delgado O, Dhillon D, Dennison JB, Ostrin EJ, Wang H, Behrens C, Do KA, Gazdar AF, Hanash SM, Taguchi A Role of CPS1 in Cell Growth, Metabolism and Prognosis in LKB1-Inactivated Lung Adenocarcinoma (JNCI 2017)

Capello M, Bantis LE, Scelo G, Zhao Y, Li P, Dhillon DS, Patel NJ, Kundnani DL, Wang H, Abbruzzese JL, Maitra A, Tempero MA, Brand R, Firpo MA, Mulvihill SJ, Katz MH, Brennan P, Feng Z, Taguchi A, Hanash SM Sequential Validation of Blood-Based Protein Biomarker Candidates for Early-Stage Pancreatic Cancer (JNCI 2017)