Ayu Sudyanti

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EDUCATION

Doctor of Philosophy, Statistics   Expected: Dec 2018
Purdue University, West Lafayette, Indiana
Thesis topic: Nonparametric Mixture Models with Applications to Genetics.

Masters of Science, Mathematical Statistics   May 2016
Purdue University, West Lafayette, Indiana

Masters of Science, Financial Mathematics   May 2013
North Carolina State University, Raleigh, North Carolina

Bachelor of Science, Mathematics   March 2010
Sepuluh Nopember Institute of Technology, Surabaya, Indonesia

WORK EXPERIENCE

Research Assistant   Fall 2016 - Present
Purdue Center for Cancer Research, Purdue University
- Analyze genetic experiments including RNA-seq, ChIP-seq, and single-cell RNA-seq with various statistical and machine learning methods.
- Write reports on initial findings and program R-Shiny Apps to visualize results.
- Advise cancer center faculty on the statistical analysis and design of experiments in grant writings.

Graduate Intern, Development Design Center   Summer 2017
Amgen, Thousand Oaks, CA
- Designed a decision making framework to support the development of personalized medicine using decision tree analysis.
- Built RShiny apps to assist teams in the use of the decision making framework.

Research Assistant   Spring 2016 - Summer 2016
School of Nursing, Purdue University
- Formulated models to understand and predict fall and hospitalization rates of Minnesota Return to Community Initiative (RTCI) program nursing home discharges.
- Investigated patient symptoms and diagnoses to evaluate effectiveness of hospitalization using logistic regression analysis.

Graduate Student Instructor, Introduction to statistics   Fall 2014 - Fall 2015
Department of Statistics, Purdue University
- Taught, prepared lectures and homework, graded exams for an undergraduate statistics class and scored an average of 4.7/5 at evaluation.

Consultant, Statistics in the Community   Fall 2014 - Spring 2016
Purdue University
- Analyzed college and career readiness as well as return on investment data of high schools for the state of Kentucky School Board.
- Determined best performing schools based on metrics such as improved ACT scores.

Teaching Assistant, Introduction to statistics   Fall 2013 - Summer 2014
Department of Statistics, Purdue University
- Taught recitation and graded exams for an undergraduate Statistics class and scored an average of 4.5/5 at evaluation.

RESEARCH	**Nonparametric Mixture Models in Constrained Spaces**	2018

Developed an approximate MCMC method for clustering of observations within a constrained space with applications in flow cytometry and Chicago crime data.

Expectation-Maximization Variational Auto-encoder method for Single Cell RNA-seq analysis (ScEMAE)   2018

Applied imputation method within a variational auto-encoder framework to estimate the effect of dropouts in the analysis of single cell RNA-seq data.

Purity Estimation of Tumor Samples via Mixture Modeling   2016

Applied Dirichlet Process Mixture Models (DPMM) and developed MCMC algorithm to estimate contamination rates of tumor tissues from Next Generation Sequencing data

OTHER SELECTED PROJECTS

Clustering of Single Cell RNA-seq Data   2017

Conduct clustering analysis to find sub-populations of single cell RNA-seq sample of cancer-associated-fibroblasts (CAFs) using existing machine learning methods.

Analysis of Chip-Seq Data   2017

Performed quality control and statistical analysis on human cells to identify regions in the genome with H3K27ac, H3K26me3, OCT1, DNMT3, both in the presence and absence of a Resviratrol or Pterostilbene.

Big Data Methods in Predicting Rossman Store Sales   2015

Predicted and analyzed the sales of 1115 Rossman stores in Europe by using big data technique of Divide-and-Recombine.

SKILLS

Proficient in: R, MATLAB, SAS, Python, Unix/Linux, High Performance Computing
Familiar with: C++, SQL, Hadoop, Samtools, MACS2, Keras
Languages: English, Indonesian, Balinese

HONORS & AWARDS

Contagious Smile Award, Department of Statistics, Purdue University	2018
StatCom Leadership Award, Department of Statistics, Purdue University	2017
Travel Grant, Women in Machine Learning	2016
Travel Grant, Deparment of Statistics, Purdue University	2016
Fulbright Scholar, North Carolina State University	2011
Dean's Award, Sepuluh Nopember Institute of Technology	2007 - 2008

LEADERSHIP EXPERIENCE

Associate Director, Statistics in the Community	2014 - 2016
Social Chair, Graduate Student Organization	2014 - 2015
Treasurer, Fulbright Student Association at NCSU	2012 - 2013
Secretary, Mathematics Student Union	2008 - 2009

CONFERENCES

Nonparametric Mixture Models in Constrained Spaces
Paper Presenter, Joint Statistical Meeting   2018

Single-cell RNA-seq of Human Prostate Cancer-associated Fibroblasts Reveals Distinct Sub-populations which may Promote Inflammatory Cell Recruitment to the Tumor Microenvironment
Poster Presentation, American Association for Cancer Research Meeting   2018

Purity Estimation of Tumor Samples via Mixture Modelling
Poster Presenter, Women in Machine Learning Workshop   2016

Estimating Contamination Rates via Bayesian Nonparametrics
Speed Presenter, Joint Statistical Meeting   2016

Living Arrangement and Outcomes at 30 Days After Nursing Home Discharge in Minnesota's RTCI Program
Contributed Presenter, Gerontological Society of America Annual Meeting   2016