

AYU SUDYANTI

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Education

Purdue University

Doctor of Philosophy in Statistics

Aug. 2013 – Aug 2019

West Lafayette, Indiana

Purdue University

Masters of Science in Statistics

Aug. 2013 – Aug. 2016

West Lafayette, Indiana

North Carolina State University

Masters of Financial Mathematics

Aug. 2011 – May 2013

Raleigh, North Carolina

Institut Teknologi Sepuluh Nopember

Bachelor of Science in Mathematics

Aug. 2006 – Jan. 2010

Surabaya, Indonesia

Experience

Overstock.com

Machine Learning Scientist

Sep. 2019 – Aug. 2022

Midvale, Utah

- Led the model deployment process from research to serving predictions in production.
- Developed an end-to-end recommendation algorithms using product text data. Improved related items click-through rate by 0.35% over existing approach in site test.
- Increased conversion and average order size on complementary items by developing a matrix factorization algorithm using purchase and click data. Improved relative conversion by 0.7% in site test which was estimated to generate over \$700,000 in profit per year.
- Led the creation and deployment of product vector representations from images using deep learning models. Designed a hybrid recommendation system using learned representations from images and text.
- Mentored interns on developing product representation using images as well as creating representation mapping from embeddings of different sources of data.
- Conducted end-to-end research projects, write reports, and published research papers.
- Provided consultation to external teams on the experimentation design and analysis of site tests.

Purdue University Center for Cancer Research

Research Assistant

Aug. 2016 – Jul. 2019

West Lafayette, Indiana

- Analyzed genetic experiments including RNA-seq, ChIP-seq, DNA-methylation, and single-cell RNA-seq with various statistical and machine learning models such as generalized linear regression and k-means clustering.
- Set up bioinformatics pipelines on high performance computing servers.
- Wrote reports and communicate statistical results in an interdisciplinary research teams.
- Advised cancer center faculty on statistical design of experiments in grant proposals.

Purdue University School of Nursing

Research Assistant

Jan. 2016 – Aug. 2016

West Lafayette, Indiana

- Formulated models to understand and predict fall and hospitalization rates of the Minnesota Return to Community Initiative program for nursing home discharges.
- Investigated patient symptoms and diagnoses to evaluate effectiveness of hospitalization using logistic regression.

Purdue University Department of Statistics

Graduate Student Instructor

Aug. 2014 – Jan. 2016

West Lafayette, Indiana

- Taught, prepared lectures and homework, graded exams for an undergraduate statistics class and scored an average of 4.7/5 at evaluation.

Purdue University Department of Statistics

Teaching Assistant

Aug. 2013 – Aug. 2014

West Lafayette, Indiana

- Taught recitation and graded exams for an undergraduate Statistics class and scored an average of 4.5/5 at evaluation.

Technical Skills

Languages: Python, R, SQL, Scala, Spark

Machine Learning Framework: Keras, Tensorflow

Developer Tools: VS Code, GCS, AWS, Airflow

Technologies/Frameworks: Linux, GitHub, Jenkins

Publications

- G. Kvernadze, **P. A. Sudyanti**, N. Subedi, M. Hajiaghayi. (co-first author). **Two is Better Than One: a Dual Embeddings Approach to Complementary Product Recommendation**. International Conference on Knowledge Graph 2022.
- V. Santhakumar, C. Barnett, K. Warnick, **P. A. Sudyanti**, V. Gerbuz, T. Mukherjee. **Item Based Recommendation Using Matrix-Factorization-Like Embeddings From Deep Networks**. ACMSE 2021.
- A. Lama, D. Saha, M. He, M. S. Dar, S. M. Utturkar, **P. A. Sudyanti**, S. McCune et al. **Oct4-mediated inhibition of Lsd1 activity promotes the active and primed state of pluripotency enhancers**. Cell Reports. 2020.
- R. E. Vickman, M. M. Broman, N. A. Lanman, O. E. Franco, **P. A. Sudyanti**, Y. Ni, Y. Ji et al. **Heterogeneity of human prostate carcinoma-associated fibroblasts implicates a role for subpopulations in myeloid cell recruitment**. The Prostate. 2020.
- **P. A. Sudyanti**. **Nonparametric Mixture Modeling on Constrained Spaces**. Dissertation. Purdue University. 2019.
- **P. A. Sudyanti**, and V. Rao. **Flexible mixture modeling on constrained spaces**. 2018. <https://arxiv.org/abs/1809.09238>.
- M. Noureldin, K. Abrahamson, Z. Hass, Y. Cai, **P. Sudyanti**, and G. Arling. **Living arrangement and outcomes at 30 days after nursing home discharge in Minnesota's RTCI program**. Gerontologist. 2016.

Selected Presentations

- **Introduction to Collaborative Filtering**. Invited Speaker. Institut Teknologi Sepuluh Nopember. 2021
- **Why Study Statistics**. Invited Speaker. Kalimantan Institute of Technology 2020
- **Practical Approach to Recommendation System**. Contributed talk. Overstock TechKno Conference. 2020
- **Data Science for Recommendation System**. Invited speaker. Institut Teknologi Sepuluh Nopember. 2020
- **Nonparametric Mixture Models in Constrained Spaces**. Paper Presenter. Joint Statistical Meeting. 2018
- **Purity Estimation of Tumor Samples via Mixture Modelling**. Poster Presenter. Women in Machine Learning Workshop, NeurIPS 2016

Leadership Experience

- **Women in Leadership Certificate**. University of Utah 2022
- **Leadership Team**. Overstock Women in Technology 2019 - Present
- **Associate Director**. Statistics in the Community 2014 - 2016
- **Social Chair**. Graduate Student Organization. 2014 - 2015
- **Treasurer**. Fulbright Student Association at NCSU. 2012 - 2013