

Nobuaki Masaki

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EDUCATION

University of Washington

Ph.D. in Biostatistics

Seattle, WA

September 2020 - June 2025

Carleton College

BA in Statistics; GPA: 3.92/4.0; Phi Beta Kappa, Sigma Xi

Northfield, MN

September 2016 - June 2020

RESEARCH EXPERIENCES

Cancer Risk Assessment and Early Detection

Fred Hutchinson Cancer Research Center, Seattle, WA

Research Assistant; Advisors: Tracey Marsh, Ph.D., Professor Ziding Feng

September 2020 - Current

- Assessing sensitivity and specificity of abbreviated MRI for hepatocellular carcinoma using surgical pathology as the gold standard for the Translational Liver Cancer Consortium
- Analyzed prevalence and risk factors for colorectal neoplasia using a generalized estimating equation
- Communicated with researchers from various sites to obtain and verify the accuracy of medical data

Inferring Rate Functions for Stochastic Models of Biological Processes

Fields Institute, Toronto, ON

Undergraduate Research Assistant; Advisor: Professor Andreas Hilfinger

July 2019 - August 2019

- Simulated chemical interactions between molecules in the cell, such as the translation of mRNA into protein, using Markov chains
- Solved for rates of chemical interactions using simulated data representing abundances of molecules in cells
- Devised a method to distinguish between spurious and correct molecular interactions
- Submitted and ran parallel simulations on Niagara supercomputer
- Presented poster at Undergraduate Mathematics Symposium at University of Illinois at Chicago

Gauge R&R Diagnostics

Carleton College, Northfield, MN

Undergraduate Research Assistant; Advisor: Professor Adam Loy

April 2019 - June 2019

- Tested the robustness of Gauge R&R studies using REML and ANOVA-based estimation on nonnormal data
- Used a simulation study to show that estimates can be biased if data is skewed or heteroskedastic

RELATED WORK EXPERIENCES

Department of Mathematics and Statistics

Carleton College, Northfield, MN

Grader/TA

April 2019 - June 2020

- Collected and graded homework for Probability, Applied Regression Analysis, and Bayesian Statistics in a timely manner
- Held weekly study sessions for Bayesian Statistics to assist students with homework and programming in R

Wells Fargo

Minneapolis, MN

Data Analysis Intern

November 2018 - December 2018

- Automated data collection and cleaning process for historical ratings of municipal bonds and financial data in Python
- Implemented neural network predicting credit ratings for municipal bonds in Python, where 90% of predicted ratings were within 2 notches of the actual ratings (difference between AAA and AA2)
- Presented findings and recommendations to senior credit analysts for integration of data science and machine learning into credit analysis and bond transactions

Toreta

Tokyo, Japan

Data Analysis Intern

June 2018 - August 2018

- Wrangled and queried datasets ranging from 10,000 to 1,000,000 rows from Google BigQuery using SQL
- Built a multivariate logistic regression predicting customer churn in R using app usage data (AUC = 70.50%)
- Presented model predictions and significant variables in this model to the customer service team to identify customers with a high risk of service cancellation
- Developed strategies to prevent turnover based on model interpretation
- Automated the data collection process to predict the risk of cancellation for new customers
- Computed a similarity index for restaurants using data from rating websites
- Implemented k-medoids in R using this similarity index to cluster restaurants and identify trends in customer behavior

ACADEMIC PROJECTS

Independent Reading on Coalescent Theory

University of Washington, Seattle, WA

Advisor: Professor Sharon Browning

January 2021 - March 2021

- Read about the coalescent model in population genetics (*Gene Genealogies, Variation and Evolution* by Hein, et. al.) and discussed questions at weekly meetings with the professor

Bootstrap Confidence Intervals for OLS Regression

Carleton College, Northfield, MN

Advisor: Professor Laura Chihara

January 2020 - June 2020

- Studied resampling methods in an OLS setting, such as bootstrapping cases, bootstrapping residuals, and wild bootstrap, used to construct bootstrap distributions for the estimated slope and intercept
- Learned about existing bootstrap interval estimation methods, such as percentile, bootstrap t, and BCa
- Simulated the coverage of confidence intervals created from combinations of different resampling and interval estimation methods on populations violating linear regression assumptions such as constant variance
- Observed that under certain forms of heteroscedasticity, bootstrap confidence intervals were better at capturing the true slope and intercept at the intended frequency

Cancer Phylogeny Reading Group

Carleton College, Northfield, MN

Advisor: Professor Layla Oesper

January 2020 - June 2020

- Conducted literature review on combinatorial and probabilistic methods used to construct trees representing how cancer cells have mutated in a patient or multiple patients
- Formulated mock peer reviews for some of these papers

Midwest Undergraduate Data Analytics Competition (3rd Place)

Minnesota State University, Mankato, MN

Advisor: Professor Adam Loy

March 2019

- Implemented an elastic net regression to predict levels of nitrate and total suspended solids (TSS) in Minnesota watersheds, using geographic and rainfall data, and determined that urban areas and cropland were contributing to nitrate levels
- Formulated an Annual Precipitation Intensity Index (APII) to observe correlation between heavy rainfall and TSS levels
- Gave an auditorium presentation about the methods used in our analysis, and policy recommendations that may reduce pollution levels such as improving farming practices and monitoring areas with low forestation
- Won 3rd place among 60 teams from 30 colleges and universities

OTHER WORK EXPERIENCES

Carleton College

Northfield, MN

Japanese Tutor

September 2016 - June 2018

- Reviewed Japanese language class materials and helped students improve their speaking skills through conversation

Guy Healy Japan

Tokyo, Japan

Japanese Counselor

June 2017 - August 2017

- Collaborated with American college students to organize camps for 300 junior high and high school students in Japan to teach English and cultivate cultural exchange
- Created teaching materials and camp activities to engage students and teach them elementary English

SKILLS

- **Languages:** R, SQL, Python
- **Technologies:** Google BigQuery, MySQL, Github, Firebase, Metabase, Tableau, Qualtrics
- **Libraries:** numpy, pandas, scikit-learn, keras, dplyr, ggplot2, plotly, shiny