

WILLIAM FRANZ LAMBERTI

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EDUCATION

George Mason University

August 2015 - December 2020

Ph.D. Computational Sciences and Informatics

Specialization: Data Science

Graduated: Fall 2020

M.S. Statistical Science

Graduated: Spring 2017

The College of New Jersey

August 2011 - May 2015

B.A. Mathematics with a Concentration in Statistics

Minor: Actuarial and Financial Risk Studies

Minor: Political Science

JOURNAL PUBLICATIONS

Blood Cell Classification using Interpretable Shape Features: A Comparative Study of SVM Models and CNN-Based Approaches, Lamberti, W. F., 2021, Computer Methods and Programs in Biomedicine Update

Extracting physical characteristics of higher-order chromatin structures from 3D image data, Lamberti, W. F., Zang, C., 2022, Computational and Structural Biotechnology Journal

REFEREED CONFERENCE PAPERS

Classification of Synthetic Aperture Radar Images of Icebergs and Ships Using Random Forests Outperforms Convolutional Neural Networks, Lamberti, W. F. 2020 IEEE Radar Conference

TEXTBOOKS

An Introduction to R for Non-Programmers, Lamberti, W. F., 2022

BOOK CHAPTERS

An Overview of Explainable and Interpretable Artificial Intelligence, Lamberti, W. F. In “AI Assurance: Towards Valid, Explainable, Fair, and Ethical AI” (To be Published October 2022)

PATENT APPLICATIONS

Pill Shape Classification using Imbalanced Data with Human-Machine Hybrid Explainable Model, Lamberti, W. F. 2021. U.S. Patent and Trademark Office

PREPRINTS

Using Shape Metrics to Describe 2D Data Points, Lamberti, W. F., 2022, arXiv

Classification of White Blood Cell Leukemia with Low Number of Interpretable and Explainable Features, Lamberti, W. F., 2022, arXiv

REFEREED SHORT PAPERS

A Brief Overview of Explainable and Interpretable AI, Lamberti, W. F. 2022. Symposium on Data Science and Statistics

SVM-Based Models for Pill Shape Classification, Lamberti, W. F., Kinser, J. M., Kennedy, W. G., Eagle, M., Holmes, D.I. 2021. Symposium on Data Science and Statistics

SVM Model for Blood Cell Classification using Interpretable Features Outperforms CNN Based Approaches, Lamberti, W. F. 2020. Symposium on Data Science and Statistics

PROCEEDINGS

Stratified Over-Representative k-folds Cross-Validation, Lamberti, W. F. 2018. In JSM Proceedings, Statistical Computing Section. Alexandria, VA: American Statistical Association.

POSTERS

Extracting physical characteristics of higher-order chromatin structures from 3D image data, Lamberti, W. F., Zang, C., 2022. CSHL Systems Biology: Global Regulation of Gene Expression.

Classification of White Blood Cell Leukemia using RF Outperforms CNNs, Lamberti, W. F. 2021. NHLBI Systems Biology Symposium.

RGalleon.com: A Resource for Non-Programmers to Learn R, Lamberti, W. F. 2017. JSM.

Stratified Over-Representative k-folds Cross-Validation, Lamberti, W. F. 2018. JSM.

WORK EXPERIENCE

Data Scientist 2022 - Present

Google

- Developed advanced modeling algorithm to describe different GKE clusters into different segments using Python
- Learned and improved skills in SQL to extract data
- Worked and communicated with international and technically diverse team across different timezones to achieve objectives
- Worked with business partners to communicate results to non-technical partners

Postdoctoral Research Assistant 2021 - 2022

University of Virginia

- Developed a process for analyzing 3D microscopy image genetic data using Python and R
- Classified images of red and white blood cells and platelets using machine learning and image processing techniques in Python and R
- Developed process for converting non-imaging data to image data

Presidential Scholar: Research Assistant

2017 - 2020

George Mason University

- Developed shape metric that describes all binary 2D shapes
- Applied metric to classification problems
- Developed pill shape classification system

Data Scientist Intern

Summer 2017

National Aeronautics and Space Administration

- Created a dynamic attrition model to estimate the number of losses per pay periods using cross validated Negative Binomial regression and boosting in R
- Presented an introduction to R to NASA's Office of Human Capital Management and NASA Langley Research Center's Interns

Consultant

2017 - Present

- Gave talks for various clients on an introduction to R
- Topics covered included basic data manipulation, cleaning, and visualization
- Provided instruction for a wide range of clients and venues such as 2019 JSM

TEACHING

Introduction to Statistics II

Fall 2015 - Spring 2017

Graduate Teaching Assistant

- Helped student from varying majors learn statistical methods
- Guest-lectured several times to present multiple regression
- Recipient of "Outstanding Teaching Assistant of 2017" award

RGalleon.com

May 2015 - Present

Founder

- Founded RGalleon.com for individuals to self-teach statistics and R
- Created and uploaded video tutorials on YouTube, website, and Facebook
- Authored website content on learning statistics and R

ASSIP Hands-On Introduction to Data Science Using R

June 2019

Instructor

- Developed curriculum and material for inaugural programming course at George Mason University for both high school and undergraduate students
- Lead classroom lectures and activities

SERVICE

2017 Joint Statistical Meeting

- Session Chair

2018 Joint Statistical Meeting

- Session Chair

2020 Symposium on Data Science and Statistics

- Session Chair

GRANTS, FELLOWSHIPS, AND AWARDS

Presidential Scholar Fellowship, George Mason University, Department of Computational and Data Sciences (\$22,000 per year for 2 years, and \$29,000 per year for 2 years)

2018 Summer Presidential Scholar Fellowship, George Mason University, Office of the Provost (\$7,000)

2018 Preparing for Careers Teaching Statistics and Data Science Workshop, ASA and NSF (\$1,000)

2018 Graduate Student Travel Fund International Travel Grant, George Mason University (\$1,000)

2019 Summer Research Fellowship, George Mason University, Office of the Provost (\$7,000)

2019 Washington Statistical Society Joint Statistical Meeting Student Travel Award, Washington Statistical Society (\$1,100)

2020 Summer Research Fellowship, George Mason University, Office of the Provost (\$7,000)

SDSS 2020 Student and Early-Career Award, American Statistical Association (\$185)

SDSS 2022 Student and Early-Career Award, American Statistical Association (\$350)

INVITED TALKS

An Introduction to Base R February 18, 2020
EMME

- Presented an introduction to base R to Dr. Krall's Environmental Mixtures and Methods for Epidemiology (EMME) lab at George Mason University

Shape Proportions and Encircled Image-Histograms Improve Analysis and Classification of Shapes for Small Data November 6, 2019
Westat

- Presented research on SPEIs

R Lectures Spring 2017 - Spring 2021
George Mason University's Student ASA Chapter

- Gave series of 15 talks on a range of R topics

MEMBERSHIPS

American Statistical Association (ASA)

Washington Statistical Society (WSS)

IEE

TECHNICAL SKILLS

Computer Languages R, Python, Unix, SQL
Software & Tools ImageJ, LaTeX

RESEARCH INTERESTS

Image Analysis	Shape analysis, image segmentation, image operators
Computer Vision	Classification problems
Machine or Statistical Learning	Model training and building, XAI, Ethical AI
Medicine/Biology	Genetic Imaging, Microscopy

NOTABLE

Eagle Scout, Boy Scouts of America - Earned: February, 2010

Bonner Community Service Scholar, The College of New Jersey