

Cristian M. Oliva Avilés

Senior Statistical Scientist · Biostatistics Department at Genentech, Inc.

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Education

Ph.D. in Statistics

Colorado State University

Thesis: Survey Estimators of Domains Means Under Shape Restrictions.

Advisors: Mary C. Meyer and Jean D. Opsomer.

Fort Collins, USA

2014 – 2018

M.S. in Statistics

Colorado State University

Fort Collins, USA

2012 – 2014

B.S. in Mathematics

Universidad Autónoma de Yucatán

Thesis: Updating input-output matrices of Mexico using RAS and cross-entropy methods.

Advisor: Lilian Albornoz Cruz.

Merida, Mexico

2007 – 2012

Fields of Interest

Biostatistics, statistical programming, survey estimation, machine learning, experimental design, nonparametric statistics and statistical consulting. Highly interested in multidisciplinary collaborations.

Professional Experience

Biostatistics Department, Genentech Inc.

South San Francisco, USA

SENIOR STATISTICAL SCIENTIST

July 2018 – present

- Propose efficient studies to characterize and validate complex manufacturing processes of therapeutic biologics.
- Apply technical expertise in linear models, sampling techniques and machine learning methods to perform statistical analyses in a broad variety of nonclinical biostatistics research projects.
- Develop R tools that facilitate and speed the performance of statistical analysis and report automation.
- Provide statistical consulting to scientists and engineers in Pharma Technical Development.
- Develop and publish novel statistical methodologies to analyze nonclinical data sets.

Department of Statistics, Colorado State University

Fort Collins, USA

GRADUATE RESEARCH ASSISTANT

May 2015 – May 2018

- Conducted research to improve survey estimation/inference using shape-restricted regression techniques, under the direction of Dr. Mary Meyer and Dr. Jean Opsomer.
- Developed the package `bcbam` in R.

GRADUATE TEACHING ASSISTANT

Jan 2013 – May 2017

- GTA Mentor.
- Taught introductory and higher level statistical courses to undergraduate students.
- Worked as a statistical consultant in a broad variety of interdisciplinary projects.
- Coordinated distance graduate courses in statistics.

Department of Anthropology, Colorado State University

Fort Collins, USA

GRADUATE RESEARCH ASSISTANT

May 2015 – May 2016

- Collaborated in a public health project with the objective of learning about the current scenario of diabetes in a low-income Mexican municipality, under the direction of Dr. Ann Magennis.

Universidad Autónoma de Yucatán

Merida, Mexico

COLLABORATOR IN THE OFFICE OF STUDENT AND INTERNATIONAL AFFAIRS

June 2011 – July 2012

- Coordinated the student leadership exchange program between Universidad Autónoma de Yucatán and Colorado State University.

- Organized a leadership course for student representatives.

UNDERGRADUATE RESEARCH ASSISTANT IN THE SCHOOL OF ECONOMICS

June 2011 – June 2012

- Updated input-output economics Mexican matrices, under the direction of Dr. Lilian Albornoz.

Awards and Honors

Honors and Distinctions

Outstanding Graduate Student Memorial Award <i>To outstanding graduate student in Statistics and/or Mathematics.</i> Statistics Department, Colorado State University	Fort Collins, USA 2018
SRMS/GSS/SSS Student Paper Competition Award <i>To the best student paper in survey research methods, government and social statistics.</i> American Statistical Association	Baltimore, USA 2017
Duane C. Boes Excellence in Teaching Award <i>To outstanding graduate student on statistical teaching.</i> Statistics Department, Colorado State University.	Fort Collins, USA 2017
James R. zumBrunnen Statistical Collaboration Award. <i>To outstanding graduate student who made significant contribution through collaboration.</i> Statistics Department, Colorado State University.	Fort Collins, USA. 2016
Student Travel Award <i>To present research work at a conference.</i> Graduate Student Council, Colorado State University.	Fort Collins, USA 2016
Franklin A. Graybill Linear Models Award <i>To outstanding graduate student in linear models.</i> Statistics Department, Colorado State University.	Fort Collins, USA 2015
University Academic Merit <i>To outstanding undergraduate student.</i> Universidad Autónoma de Yucatán.	Merida, Mexico 2006, 2008

Awards in competitions

Bronze Medal: XLVIII International Mathematical Olympiad	2007
Bronze Medal: XIX Asian Pacific Mathematics Olympiad	2007
Gold Medal: XXXVII Annual Mathematical Contest in the Southeast of Mexico	2007
Gold Medal: XX Mexican Mathematical Olympiad	2006
Silver Medal: XIX Mexican Mathematical Olympiad	2005

Fellowships

CONACYT Fellowship <i>To study Master and Ph.D. education abroad.</i> National Council of Science and Technology.	Mexico 2014–2018
Complement Fellowship for Graduate Studies Abroad <i>Extra support to cover graduate school abroad expenses.</i> Mexican Department of Education.	Mexico 2014
International Presidential Fellow <i>To develop graduate students leadership potential in international sphere.</i> Colorado State University.	USA 2013–2014
TELMEX Fellowship <i>To support outstanding undergraduate students.</i> Teléfonos de Mexico.	Mexico 2007–2010
Academic Excellence Fellowship <i>To support excellent undergraduate students.</i> Mexican Department of Education.	Mexico 2008, 2009

Publications

Gaussian Process Modeling for Dissolution Curve Comparisons <i>Pourmohamad, T., Oliva-Aviles, C., Richardson, R.</i>	(submitted)
Estimation and inference of domain means subject to qualitative constraints. <i>Survey Methodology, Statistics Canada, Catalogue No. 12-001-X, Vol. 46, No. 2.</i> Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D.	2020
Checking validity of monotone domain mean estimators. <i>The Canadian Journal of Statistics, 47(2):315-331.</i> Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D.	2019

Scientific Software

Website of COVID-19 cases in Mexico: cristianoliva88.github.io/COVID-19_MX.

Cristian Oliva.

Website to facilitate the understanding of COVID-19 cases in Mexico.

bcgam, R package (available in CRAN).

Cristian Oliva & Mary C. Meyer.

Bayesian estimation and inference for generalised partial linear models using shape restricted splines.

Academic Experience

Talks in Conferences/Seminars.....

'Estimation and inference of domain means subject to shape constraints'

Vancouver, Canada

Joint Statistical Meetings.

July 2018

American Statistical Association.

'Estimation and inference of domain means under shape constraints'

Banff, Canada

Shape-Constrained Methods: Inference, Applications, and Practice.

Feb 2018

Banff International Research Station.

'Are we teaching p -values significantly?'

Fort Collins, USA

Student Organized Activities and Research Seminars.

Oct 2017

Department of Statistics, Colorado State University.

'Checking validity of constrained survey estimators'

Baltimore, USA

Joint Statistical Meetings. Student Paper Competition Award winner.

Aug 2017

American Statistical Association.

'Survey estimators for ordered domain means'

San Jose, Costa Rica

Latin American Congress of Probability and Mathematical Statistics.

Dec 2016

Universidad de Costa Rica.

'Small area domain estimation under order restrictions'

Merida, Mexico

Anniversary of the School of Mathematics.

Sep 2016

Universidad Autónoma de Yucatán.

'Survey estimators for ordered domain means'

Chicago, USA

Joint Statistical Meetings.

Aug 2016

American Statistical Association.

'Updating Mexican input-output matrices using the cross-entropy method'

Tijuana, Mexico

Seminar.

June 2012

Mexican Association of Input-Output Analysis.

Workshops.....

Extreme Value Modeling and Water Resources. Camille Jordan Institute.

Lyon, France

Travel award recipient

2016

Dependence, Stability and Extremes. Fields Institute.

Toronto, Canada

Travel award recipient

2016

Bayesian Nonparametric Statistics. SAMSI.

Durham, USA

Travel award recipient

2015

Spatio-Temporal Statistics. Pan-American Advanced Study Institute.

Rio de Janeiro, Brazil

Travel award recipient

2014

Solving Calculus Problems. Center of Mathematical Research (CIMAT).

Guanajuato, Mexico

Travel award recipient

2008

International Mathematical Olympiad Training Camp. Banff International Research Station.

Banff, Canada

Invited as part of the IMO Mexican team

2007

Poster Presentations.....

'Novel alternative to estimate error propagation in E2E stability analysis'

New Jersey, USA

ASA-BIOP Nonclinical Biopharmaceutical Conference.

June 2019

'Checking validity of monotone domain mean estimators'

Fort Collins, USA

CSU Statistics Department Poster Session.

March 2017

CSU Graduate Student Showcase.

November 2016

Teaching Experience

GTA Mentor. Statistics Department, Colorado State University. <i>To supervise grad students teaching statistics for the first time.</i>	Fort Collins, USA Fall 17
Instructor. Statistics Department, Colorado State University. <i>Statistics for Engineers and Scientists (STAT315).</i> <i>Statistics for Business Students (STAT204).</i>	Fort Collins, USA Fall 16, Spring 17 Fall 14
Invited Instructor. School of Mathematics, Universidad Autónoma de Yucatán. <i>Generalized Linear Models.</i> <i>Nonparametric Statistics.</i>	Merida, Mexico Summer 14 Summer 13
Teaching Assistant. Statistics Department, Colorado State University. <i>Statistical Computing (STAT400).</i> <i>Introduction to Probability Theory (STAT520).</i> <i>General Statistics (STAT201).</i>	Fort Collins, USA Fall 15 Fall 13 Spring 13, Spring 15
Distance Coordinator. Statistics Department, Colorado State University. <i>Regression Models and Applications (STAA551).</i> <i>Methods in Multivariate Analysis (STAA574).</i>	Fort Collins, USA Spring 14 Spring 14
Instructor. Mexican Mathematical Olympiad. <i>Workshop for instructors and students of the math olympiad.</i>	Tepic, Cancun & Campeche; Mexico. Summer 08

Consulting Experience

Private Consultant. <i>Worked in interdisciplinary projects on the areas of Biology, Microbiology, Public Health, Geology, Soil and Crop Sciences and Animal Sciences.</i>	Fort Collins, USA Aug 2014 – May 2018
Statistical Consultant. Franklin Graybill Statistical Laboratory, Colorado State University. <i>Provided general statistical consulting to Colorado State University researchers.</i>	Fort Collins, USA Fall 13, Spring 15

Leadership experience

President and Treasurer. CSU Latin American Students and Scholars Organization ◦ Coordinated projects to promote the Latin American culture with the community of Colorado State University. ◦ Acknowledged with the Cultural Program of the Year Award in 2016.	2014–2016
President. Associated Students of Universidad Autónoma de Yucatán (UADY) ◦ Organized activities to contribute to the comprehensive education of students at UADY (23,000 approx). Managed an annual budget of \$150,000, and lead a main group of 22 student representatives.	2009–2011
Student Counselor of the School of Mathematics. XIII University Council of UADY ◦ Represented the student math community in the highest decision making authority in UADY. ◦ Participated in the academic council of the School of Mathematics of UADY. ◦ Coordinated the Pierre Fermat Mathematical Contest in Yucatan. ◦ Organized the annual calculus contests of UADY.	2009–2011
Member. Organizing Committee of the Mexican Mathematical Olympiad ◦ Taught workshops for instructors and students of the math olympiad in several Mexican states. ◦ Collaborated as an instructor, organizer and grader of the Mexican Mathematical Olympiad in Yucatan, Mexico.	2007–2011

Outreach Activities

Professional development talks <i>'Useful personal websites'.</i> Colorado State University. <i>Panel of CSU statistics graduate students and alumni.</i> Colorado State University.	 Nov 2017 April 2017
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Motivational talks

Since I was awarded with a Bronze Medal in the International Mathematical Olympiad, I have dedicated some of my spare time to give talks in educational institutions to motivate students from all education levels to make the most of their time at school, and to promote the study of STEM careers.