Cristian M. Oliva Avilés

Principal Statistical Scientist · Product Development at Genentech, Inc.
South San Francisco, California. 94080.
✉ olivaavc@gene.com • cristianoliva88.github.io/website

Education

Ph.D. in Statistics — Fort Collins, USA
Colorado State University — *2014 – 2018*
Thesis: Survey Estimators of Domains Means Under Shape Restrictions.
Advisors: Mary C. Meyer and Jean D. Opsomer.

M.S. in Statistics — Fort Collins, USA
Colorado State University — *2012 – 2014*

B.S. in Mathematics — Merida, Mexico
Universidad Autónoma de Yucatán — *2007 – 2012*
Thesis: Updating input-output matrices of Mexico using RAS and cross-entropy methods.
Advisor: Lilian Albornoz Cruz.

Fields of Interest

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

Professional Experience

Product Development, Genentech Inc. — South San Francisco, USA
Principal 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 `bcgam` 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 — Fort Collins, USA
To outstanding graduate student in Statistics and/or Mathematics. — *2018*
Statistics Department, Colorado State University

SRMS/GSS/SSS Student Paper Competition Award — Baltimore, USA
To the best student paper in survey research methods, government and social statistics. — *2017*
American Statistical Association

Duane C. Boes Excellence in Teaching Award — Fort Collins, USA
To outstanding graduate student on statistical teaching. — *2017*
Statistics Department, Colorado State University.

James R. zumBrunnen Statistical Collaboration Award. — Fort Collins, USA.
To outstanding graduate student who made significant contribution through collaboration. — *2016*
Statistics Department, Colorado State University.

Student Travel Award — Fort Collins, USA
To present research work at a conference. — *2016*
Graduate Student Council, Colorado State University.

Franklin A. Graybill Linear Models Award — Fort Collins, USA
To outstanding graduate student in linear models. — *2015*
Statistics Department, Colorado State University.

University Academic Merit — Merida, Mexico
To outstanding undergraduate student. — *2006, 2008*
Universidad Autónoma de Yucatán.

Awards in competitions

Bronze Medal: XVLIII 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 — Mexico
To study Master and Ph.D. education abroad. — *2014–2018*
National Council of Science and Technology.

Complement Fellowship for Graduate Studies Abroad — Mexico
Extra support to cover graduate school abroad expenses. — *2014*
Mexican Department of Education.

International Presidential Fellow — USA
To develop graduate students leadership potential in international sphere. — *2013–2014*
Colorado State University.

TELMEX Fellowship — Mexico
To support outstanding undergraduate students. — *2007–2010*
Teléfonos de Mexico.

Academic Excellence Fellowship — Mexico
To support excellent undergraduate students. — *2008, 2009*
Mexican Department of Education.

Publications

Gaussian Process Modeling for Dissolution Curve Comparisons — 2022
Journal of the Royal Statistical Society Series C, Royal Statistical Society, 71(2):331-351
Pourmohamad, T., Oliva-Aviles, C., Richardson, R.

Estimation and inference of domain means subject to qualitative constraints. — 2020
Survey Methodology, Statistics Canada, Catalogue No. 12-001-X, Vol. 46, No. 2.
Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D.

Checking validity of monotone domain mean estimators. — 2019
The Canadian Journal of Statistics, 47(2):315-331.

Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D.

Living with type 2 diabetes in San Jose Tecoh, Yucatan, Mexico: A phenomenological study. 2019
Journal of Transcultural Nursing, 30(3):214-221.
Vicente, A., Candila, J., Thomas, J.J., Gomez Aguilar, P., Oliva-Aviles, C.

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. **Fort Collins, USA**
To supervise grad students teaching statistics for the first time. *Fall 17*

Instructor. Statistics Department, Colorado State University. **Fort Collins, USA**
Statistics for Engineers and Scientists (STAT315). *Fall 16, Spring 17*
Statistics for Business Students (STAT204). *Fall 14*

Invited Instructor. School of Mathematics, Universidad Autónoma de Yucatán. **Merida, Mexico**
Generalized Linear Models. *Summer 14*
Nonparametric Statistics. *Summer 13*

Teaching Assistant. Statistics Department, Colorado State University. **Fort Collins, USA**
Statistical Computing (STAT400). *Fall 15*
Introduction to Probability Theory (STAT520). *Fall 13*
General Statistics (STAT201). *Spring 13, Spring 15*

Distance Coordinator. Statistics Department, Colorado State University. **Fort Collins, USA**
Regression Models and Applications (STAA551). *Spring 14*
Methods in Multivariate Analysis (STAA574). *Spring 14*

Instructor. Mexican Mathematical Olympiad. **Tepic, Cancun & Campeche; Mexico.**
Workshop for instructors and students of the math olympiad. *Summer 08*

Consulting Experience

Private Consultant. **Fort Collins, USA**
Worked in interdisciplinary projects on the areas of Biology, Microbiology, Public Health, Geology, Soil and Crop Sciences and Animal Sciences. *Aug 2014 – May 2018*

Statistical Consultant. Franklin Graybill Statistical Laboratory, Colorado State University. **Fort Collins, USA**
Provided general statistical consulting to Colorado State University researchers. *Fall 13, Spring 15*

Leadership experience

President and Treasurer. CSU Latin American Students and Scholars Organization **2014–2016**
- 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.

President. Associated Students of Universidad Autónoma de Yucatán (UADY) **2009–2011**
- 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.

Student Counselor of the School of Mathematics. XIII University Council of UADY **2009–2011**
- 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.

Member. Organizing Committee of the Mexican Mathematical Olympiad **2007–2011**
- 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.

Outreach Activities

Professional development talks
'Useful personal websites'. Colorado State University. *Nov 2017*
Panel of CSU statistics graduate students and alumni. Colorado State University. *April 2017*

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.