

# Cristian M. Oliva Avilés

Senior Statistical Scientist · Biostatistics Department at Genentech, Inc.

South San Francisco, California. 94080.

✉ [olivaavc@gene.com](mailto:olivaavc@gene.com) • 🌐 [cristianoliva88.github.io/website](https://cristianoliva88.github.io/website)

## 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

- Proven ability solving problems in statistics and mathematics, attested by national and international awards.
- Statistician with experience in the biotech industry, particularly on providing statistical support/consulting to nonclinical research projects.
- Proficient and highly experienced in R. Proven skills to learn programming languages.
- Developed/maintained a [website](#) to facilitate the understanding of COVID-19 cases in Mexico.
- Experienced instructor of introductory and higher level college statistical courses.
- Proven leadership skills, with experience leading student organizations in Mexico and USA.

### 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

### Awards in competitions

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

### Honors and Distinctions

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

## Fellowships

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

## Publications

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| <b>Spectrum of Tuberculosis: what can the proteome of host exosomes tell us?</b><br><i>Gustavo, Diaz; Cristian Oliva; Karen M. Dobos; Nicole A. Kruh-García.</i>               | (in progress) |
| <b>Estimation and inference of domain means subject to qualitative constraints.</b><br><i>To appear in Survey Methodology.</i><br>Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D. | (in press)    |
| <b>Checking validity of monotone domain mean estimators.</b><br><i>The Canadian Journal of Statistics, 47(2):315-331.</i><br>Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D.      | 2019          |

## Scientific Software

**Website of COVID-19 in Mexico.** Visit [here](#).

*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

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

## Consulting Experience

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

## Leadership experience

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|---|------------------|
| <b>President and Treasurer.</b> CSU Latin American Students and Scholars Organization<br>◦ Coordinated projects to promote the Latin American culture with the community of Colorado State University.<br>◦ Acknowledged with the Cultural Program of the Year Award in 2016.   | <b>2014–2016</b> |
| <b>President.</b> Associated Students of Universidad Autónoma de Yucatán (UADY)<br>◦ 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.   | <b>2009–2011</b> |
| <b>Student Counselor of the School of Mathematics.</b> XIII University Council of UADY<br>◦ Represented the student math community in the highest decision making authority in UADY.<br>◦ Participated in the academic council of the School of Mathematics of UADY.<br>◦ Coordinated the Pierre Fermat Mathematical Contest in Yucatan.<br>◦ Organized the annual calculus contests of UADY. | <b>2009–2011</b> |
| <b>Member.</b> Organizing Committee of the Mexican Mathematical Olympiad<br>◦ Taught workshops for instructors and students of the math olympiad in several Mexican states.<br>◦ Collaborated as an instructor, organizer and grader of the Mexican Mathematical Olympiad in Yucatan, Mexico.   | <b>2007–2011</b> |

## Outreach Activities

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