

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

- To provide statistical support in nonclinical projects to contribute to the development of Roche's pipeline.
- To perform statistical analyses that aim to communicate to health authorities around the world that an appropriate quality of product is delivered to patients.
- To develop programming tools for report automation of standard statistical analyses.

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.....

Bronze Medal: XLVIII International Mathematical Olympiad

2007

Bronze Medal: XIX Asian Pacific Mathematics Olympiad

2007

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| 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 |
| 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 |

Fellowships

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| 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

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| Spectrum of Tuberculosis: what can the proteome of host exosomes tell us? <i>Gustavo, Diaz; Cristian Oliva; Karen M. Dobos; Nicole A. Kruh-Garcia.</i> | (in progress) |
| Estimation and inference of domain means subject to qualitative constraints. <i>To appear in Survey Methodology.</i> Oliva-Aviles, C., Meyer, M.C., Opsomer, J.D. | (in press) |
| 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 |
| Living with type 2 diabetes in San Jose Tecoh, Yucatan, Mexico: A phenomenological study. <i>Journal of Transcultural Nursing, 30(3):214-221.</i> Vicente, A., Candila, J., Thomas, J.J., Gomez Aguilar, P., Oliva-Aviles, C. | 2019 |

Scientific Software

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

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

Consulting Experience

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

Leadership experience

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| President and Treasurer. CSU Latin American Students and Scholars Organization | 2014–2016 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> 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

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