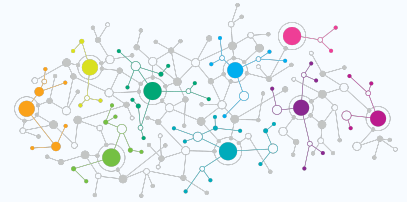


# ROBERTO OLAYO ALARCON

Most of my education has been as a student of the **National Autonomous University of Mexico** (UNAM for its name in Spanish). Currently, I am a seventh semester student of the Undergraduate Program in Genomic Sciences from this university. **My background consists mainly of a combination of biology, mathematics and computer science.**


Most of my research experience has been in **bioinformatics and biological data analysis**. I believe it is important to tackle one of the most important challenges of our time: Antibiotic Resistance.

Currently, I am **searching for postgraduate opportunities** to progress my career as a researcher. I would like to do research that aims to solve questions dealing with antibiotic resistance through a quantitative/computational approach.




## EDUCATION

2020  
|  
2016

- **Bs.C Genomic Sciences**  
National Autonomous University of Mexico  Cuernavaca, Mexico
  - Current general grade: 9.83/10
  - Four-year bachelor's program. Combined background of biology, mathematics and informatics.

2016  
|  
2013

- **High School**  
Escuela Nacional Preparatoria 6 "Antonio Caso" UNAM  Mexico City, Mexico
  - General grade: 9.48/10
  - Specialized in biological and chemical studies

## PUBLICATIONS

2019


- **GeDex: A consensus Gene-disease Event Extraction System based on frequency patterns and supervised learning**  
Currently under review.
  - Pre-print available <https://www.biorxiv.org/content/10.1101/839704v2>
  - co-First Author.
  - This project was developed under Dr. Carlos Mendez-Cruz.

## AWARDS AND SCHOLARSHIPS

2020  
|  
2018

- **Beca Excelencia Academica Olimpiadas**  
Mexican Academy of Sciences
  - This scholarship is awarded by the Mexican Academy of Sciences to bachelor students with high academic achievement and that were awarded a medal at one the National Science Olympiads

## CONTACT

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 +52 01 55-43417968

## PROGRAMMING SKILLS

Most experience with:

- Python
- R
- Bash

Basic experience with:

- Perl
- HTML
- PHP
- SQL

## BIOINFORMATIC SKILLS

RNA-Seq  
ChIP-Seq  
Metagenomics  
Phylogenomics  
Sequence Scanning

Last updated on 2019-12-06.

- 2016 ● **Programa de Capacitacion en Metodos de Investigacion**  
Secretariat of Public Education and National Autonomous University of Mexico
  - This scholarship finances international internships for students, of any level, with high academic achievement.
- 2016 ● **Pre-University Science Fair**  
Second Place
  - This science fair awards outstanding projects performed by high-school students in public institutions
  - Described the effect of garlic extracts as an inhibitor of growth of fungus.
- 2016 ● **National Biology Olympiad**  
Third Place
  - The National Biology Olympiad is organized by the Mexican Academy of Sciences.
  - Students that were previously selected by their respective state competitions, take a written and practical exam in hopes of reaching first place, and the chance to represent Mexico in international competitions.

## LANGUAGES

Spanish: Native

English: Native

German: Beginner



## RESEARCH EXPERIENCE

- 2020  
|  
2019 ● **Dr. Robert Schneider**  
Institute of Functional Epigenetics Helmholtz Zentrum Muenchen
  - Describing mechanisms behind transcriptional memory.
  - Used predictive models to relate enhancers to regulated genes.
  - Describing possible roles of Histone 1 subtypes during cell differentiation.
- 2020  
|  
2018 ● **Dr. Carlos Medez Cruz**  
Center for Genomic Sciences UNAM UNAM
  - Supervised learning approaches in Natural Language Processing
  - Developed GeDEx; an automatic tool that captures consensus relationships between genes and diseases from a collection of abstracts.
  - Benchmarked performance of Deep Learning models to predict antibiotic resistance from genomic sequences.
- 2019  
|  
2017 ● **Dr. Julio Freyre**  
Center for Genomic Sciences UNAM UNAM
  - Participated in Systems Biology Workshop
  - Implemented and reviewed tools that predict gene regulatory networks in bacteria (manuscript in preparation)
- 2019  
|  
2018 ● **Dr. Alejandro Sanchez Flores**  
Institute of Biotechnology UNAM
  - Participated in metagenomics workshop
  - Uncovered changes in the microbiome of pigs during the first months of life, as a result of consumption of different diets
  - Uncovered differentially expressed genes in intestinal tissues as a result of consumption of different diets

I have mainly worked in the areas of Epigenomics, Machine Learning and Metagenomics; almost always involved in the computational aspects of the projects I participate in.

- 2018 ● **Dr. Robert Schneider**  
Institute of Functional Epigenetics 📍 Helmholtz Zentrum Muenchen
- Uncovered genes that show transcriptional memory after repeated exposure to stress.
  - Summer internship
- 2017 ● **Dr. Ana de Busturia**  
Centro de Biología Molecular Severo Ochoa  
📍 Autonomous University of Madrid
- Regulation of polycomb genes by non-coding RNAs
  - Winter internship made possible by the Programa de Capacitación en Métodos de Investigación scholarship
- 2017 ● **Dr. Santiago Castillo**  
Center for Genomic Sciences 📍 UNAM
- Detection of insertion sequences conferring antibiotic resistance in *A. baumannii* strains.
  - Phylogenomics and comparative genomics.
  - Fall semester internship
- 2016 | 2015 ● **Ms.C Esteban Lopez**  
Escuela Nacional Preparatoria 6 "Antonio Caso" UNAM 📍 UNAM
- Described the effect of garlic extracts as an inhibitor of growth of fungus.
  - Won second place in the pre-university science fair
- 2013 ● **Dr. Magda Latorre Esteves**  
Winter 2012 Pre-College Research Symposium  
📍 University of Puerto Rico
- Analyzed the effect of time of exposure to UV light on the growth of *S. cerevisiae*.
  - Presented poster at a symposium



## TEACHING EXPERIENCE

- 2019 ● **Seminar in Statistics**  
Center for Genomic Sciences 📍 UNAM
- Teaching Assistant. Also lectured on basics of R
  - This class is offered to undergraduates and postgraduates working at the Center for Genomic Sciences
  - Organized by Dr. Ayari Fuentes and Dr. Diego Cortez
- 2019 ● **Introduction to Machine Learning**  
Center for Genomic Sciences 📍 UNAM
- Teaching Assistant. Lectured session on backpropagation
  - Course offered to students interested in Machine Learning and Deep Learning at the Center for Genomic Sciences
  - Course organized by Dr. Carlos Mendez Cruz

I really like being involved in teaching and science communication. I believe that teachers have allowed me to reach my goals, and I would like to help others do the same.

- 2016 ● **Preparation for the State Biology Olympiad** 📍 UNAM  
Escuela Nacional Preparatoria 6 "Antonio Caso"
- Organized and lectured
  - Summer course offered to high-school students interested in participating in the selection round for the National Biology Olympiad
  - Organized by Ms.C Esteban Lopez



## SPECIAL COURSES

- 2019 ● **Antibiotic Resistance: Mechanisms and Perspectives** 📍 UNAM  
Center for Genomic Sciences
- Graduate course offered to students at the Center for Genomic Sciences.
  - Organized by Dr. Miguel Cevallos Gaos
- 2018 ● **Workshop: Introduction to Deep Learning** 📍 UNAM  
Universidad Autonoma del Estado de Morelos
- Workshop offered to anybody interested in deep learning
  - Lectured by Dr. Edgar F. Román Rangel
- 2018 ● **Basics of Applied Machine Learning** 📍 UNAM  
Center for Genomic Sciences
- Optional undergraduate course.
  - Organized by Dr. Carlos Mendez Cruz



## PRESS (ABOUT)

- 2016 ● **Tres medallas para preparatorianos en la Olimpiada Nacional de Biología**  
Gaceta Universitaria de la ENP
- Brief piece about my experiences during the National Biology Olympiad
  - Available at <http://dgenp.unam.mx/gaceta/2016/14-2015-2016-348.pdf>