# Julián Mauricio Cruz Pulido

✉: cruz.julian.mauricio@gmail.com, ☏: Cruz Julian

Data scientist, professional in Statistics and Master of Sciences. Currently, manager of the Data Science Program in the Continuing Education Office at Universidad Nacional de Colombia. Research professor at Universidad Externado de Colombia. Individual with more than 5 years of experience in proposal, execution, evaluation and feedback of actionable data analysis projects in various fields. Among the skills that can be mentioned are: team building, effective communication and commitment to details.

---

# Background

## Education

- M.Sc. Statistics, master thesis: Aplicación de Algoritmos de Agrupamiento a Funciones de Distribución Empírica. National University of Colombia. September of 2018.

- Statistics, disertation: Estimación Heurística de Medidas de Probabilidad Mediante Mixturas. Universidad Nacional de Colombia. May of 2015.

## Software skills

- Expert: R

- Advanced: Microsoft Office (Word, Excel, Power Point); Inkscape.

- Basic: SQL, Python, HTML5, CSS3, PHP, LaTeX, Java, C++, Blender, Linux, Bash, Docker.

## Languages

- English: B1 (Examen de Estado de Calidad de la Educación Superior, Saber Pro 2013)

## Publications

- Arias, N., Cruz, J., & Rincón, W. (2021). Diferencia de logro geolocalizado en educación presencial y a distancia en Colombia. *Revista Electrónica de Investigación educativa REDIE.*
- Arias, N., & Cruz, J. (2021). Temas de investigación sobre competencias de profesores en iniciativas de actores externos en escuelas colombianas de educación básica y media. *Poliantea.*
- Cruz, J,. & Mendoza, F., (2021). The market segmentation of higher education in Colombia reveals social inequalities. *Cogent Education.*
- Cruz, J,. Fonseca,. V., (2020). Interpreting the model is for humans, not for computers. *Towards Datascience.*
- Cruz, J., Yepes, G., et.al. (2019) Estado de las prácticas empresariales contra el soborno: primer estudio latinoamericano. *Icontec Internacional.* ISBN: 978-958-56842-3-2.
- Bustos, L., Cruz, J., Yepes, G., et.al. (2019). Chapter 16: International CSR Policies in the Mining Sector and Their Implementation in Colombia.. *LexisNexis Canada.*
- Arias, N., Cruz, J., & Rincón, W. (2018). Women and Men's Performace in Face-to-face, Virtual and Distance Higher Education in Colombia. *Revista Panorama, 12(22), 58-69.* DOI: http://dx.doi.org/10.15765/pnrm.v12i22.1142.

- Cruz, J., Yepes, G., (2018)Corrupción en Colombia: El soborno corporativo como institución. Universidad Externado de Colombia. ISBN 978-958-772-880-4.
- Arias, N., Cruz, J., & Rincón, W. (2017). Factores asociados al logro educativo en estudiantes de Ciencias Económicas en modalidad presencial y a distancia en Colombia. *III Congreso Mundial de Educación Superior a Distancia.*
- Cruz, J., Yepes, G., et.al. (2015). Estado de la Responsabilidad Social Empresarial en Colombia. *Avances de Entorno de los Negocios. N° 20, ISSN 1794 – 791X.* Universidad Externado de Colombia.

## Learning projects and acknowledgments

- 3rd International Congress "Estudios en Organizaciones Públicas, Privadas y Sociales en América Latina y El Caribe". Presentation: *Logro Educativo y Evidencias de sus posibles Factores Asociados en Estudiantes de Ciencias Económicas en Modalidadd Presencial y Virtual,* with Nicolás Arias and William Rincón.
- R package: *Saber,* with Daniel Moreno and Adriana Clavijo:
- R package: *Colmaps,* with Daniel Moreno and Adriana Clavijo.
- 25 Simposio Internacional de Estadística 2015. Presentation: *Un micro-mapa de Colombia,* with Daniel Moreno and Adriana Clavijo.
- 24 Simposio Internacional de Estadística 2014. Presentation: *Uso De Metaheurísticas en Estimación Nadaraya-Watson con Aplicación a Cirugía Refractiva.*
- 24 Simposio Internacional de Estadística 2014. Presentation: *Algoritmos de Agrupación en Diseño de Experimentos. Una Propuesta No Paramétrica.*
- National best score by career in Saber Pro test, 2013.
- Full scholarship at Universidad Nacional de Colombia for best entrance score, 2009.
- Best score in ICFES exam in his promotion and Honorable Mention for artistic development, 2002.

---

# Working

## Universidad Externado de Colombia

Statistical consultancy in research. Methodological design, data collection, estimation of parameters, sample sizes, form design, survey development, web platform development, sample design and quantitative analysis, among others, for the studies:

- Index of Institutionalization of Bribery in Latin America and the Caribbean. Published in the book State of business practices against bribery: first Latin American study.
- National Transparency Study 2018. Report published by Transparency for Colombia.
- Corporate Bribery as an Institution. Published in the book Corruption in Colombia.
- National Transparency Study 2016. Report published by Transparency for Colombia.

Additionally, brief interventions and collaborations for some Master's theses and research articles.

- Role: Professor
- Immediate boss: Gustavo Yepes
- Contact: gustavo.yepes@uexternado.edu.co
- April 2016 - Currently.

## Colombian Ministry of Information Technology and Communications

Management of the Data Science team. Start-up of the analytics procedure. Proposal, execution, evaluation and feedback of Data Science projects for the analysis of the information contained in the information systems that incorporate the use of analytical tools for large volumes of information (Big Data), in compliance with all the related with legal, contractual and regulatory obligations of the companies that provide mobile, non-mobile, television, sound broadcasting and postal services.

- Role: Head of Data Science
- Immediate boss: Nicolás Almeyda
- Contact: nalmeyda@mintic.gov.co
- August 2020 - December 2021.

## Colmena Occupational Risk Insurer

Statistical advice on occupational health and safety for Sanitas Internacional. Implementation of information systems, database design, data collection and analysis of occupational medical cases and measurement of occupational health impact indicators. Advice to 3 Epidemiological Surveillance Systems: Psychosocial, Ergonomic and Biological Risk, and implementation of algorithms to identify frequent absenteeism.

- Role: Project Prevention Advisor
- Immediate boss: Mario Garzón
- Contact: mfgarzon@colsanitas.com
- February 2014 – February 2015

## Optilaser

Statistical consulting in research. Methodological design, statistical analysis, visualization and interpretation of quantitative results in visual health.

- Role: Statistical advisor in scientific research.
- Immediate boss: María Victoria Báez
- Contact: vicky.baez@optilaser.com.co
- June 2011- January 2013

---

# Consulting

In this section, some projects executed as freelancer are presented.

## Universidad Externado de Colombia

Software design and development. Management of the design and development of the Corporate Social Responsibility platform 3SC4L4. Complete project management, team conformation, requirements gathering, backlog, user stories, minimum viable product and subsequent iterations.

The final product can be accessed at 3sc4l4.co

Project data:

- Role: Project manager
- Client: First Steps in Corporate Social Responsibility Program
- Client (representative): Gustavo Yepes.
- Contact: gustavo.yepes@uexternado.edu.co

## Universidad Nacional de Colombia

Management of the Data Science Program. Design of learning curriculum, selection of content, teachers and materials for each course. Coordination of schedules, spaces, software and implementation details.

Strategic analysis of the market and communication channels. Implementation of a student-centered immersive learning experience.

It is possible to access the different versions of the diploma at:

- Diplomado de Análisis de datos: October 2019 - December 2019.
- Diplomado de Ciencia de datos: September 2020 - December 2020.
- Diplomado de Ciencia de datos: February 2021 - June 2021.

Project data:

- Role: Program manager
- Client: Continuing Education Office.
- Contact: uniei_fcebog@unal.edu.co, 3165000 Ext 12305/12306/12307.

## Platzi

Statistical Inference Course. Design of the syllabus, presentations, readings, codes and other related materials.

It is possible to access the final product in Inferential Statistics with R.

Project data:

- Role: Teacher
- Client (representative): Enrique Devars.
- Contact: devars@platzi.com
- July 2020.

## Instituto Politécnico Grancolombiano

Consulting in data mining. Design and development of a system of distances between subjects for the optimization of the portfolio of subjects in the framework of upgrades in the institutional platform.

Project data:

- Role: Specialized Statistical Consultant
- Cilent (representative): Ana Cristina Miranda.
- Contact: amiranda@poligran.edu.co.
- February 2018 - April 2018.

Statistical consulting in research. Methodological design, information collection and statistical analysis, visualization and study's results interpretation The market segmentation of higher education in Colombia reveals social inequalities.

Project data:

- Role: Specialized Statistical Consultant
- Client (representative): Frederick Andrés Mendoza.
- Contact: famendozal23@gmail.com
- May 2017 - August 2017.

Statistical consultancy in research Methodological design, information collection and statistical analysis for the study *Educational Achievement in Students of Economic Sciences in Face-to-face and Virtual Higher Education.* Winning project at ICFES 2015 Call.

Project data:

- Role: Specialized Statistical Consultant
- Client (representative): Nicolás Arias.
- Contact: nariasv@poligran.edu.co
- August 2016 - December 2016.

### Fundación para la Educación y el Desarrollo Social FES - Ministry for the Information and Communication Technologies

Multidimensional Regional Digital Divide Index. Methodological design, household survey, analysis of indicators, design of a multidimensional index for the Regional Digital Divide Closure Project study.

Project data:

- Role: Researcher
- Client (representative): Diana María Duarte.
- Contact: dm.duarte29@uniandes.edu.co
- January 2018 - July 2018.

### Internet Services Latam

Specialized Statistical Consultancy. Design and development of a demand forecast model SKU/time/location for the Mercadoni app. Preparation and analysis of historical retail sales data; conceptualization of the Parzen Window model for demand, development of the code and implementation of the model.

Project data:

- Role: Specialized Statistical Consultant
- Client (representative): Daniel Moreno.
- Contact: troybros@gmail.com
- December 2017 - January 2018.

### Power Data

Churn forecast models for Claro Hogares. Planning and direction in measurement and forecasting processes for the Analytics area. Design, fitting, estimation and implementation of statistical, machine learning and data mining models and algorithms.

Project data:

- Role: Senior Consultant
- Client (representative): Nicolás Aristizabal.
- nicolas.aristizabal.eci@gmail.com
- November 2015 - March 2016

---

# Teaching

Postgraduate and continuing education professor. This work enhances the complete deploying of courses in postgaduate and continuing education programs by designing, building and teaching such courses, including pedagogical materials and evaluation tools.

- *Investigación cuantitativa de mercados.* Course of the Marketing Master Program of the Business School from Universidad Externado de Colombia. 2020.
- *Analítica de negocios.* Course of the Strategic Managing of Technologies Master Program of the Business School from Universidad Externado de Colombia. 2020.
- *Elaboración de informes estadísticos.* Course designed for District Oversight Office employees. Continuing Education Office, School of Economic Sciences. Universidad Nacional de Colombia. 2019.
- *Minería de Datos.* Course designed for Agrarian Bank employees. Continuing Education Office, School of Economic Sciences. Universidad Nacional de Colombia. 2019.
- *Minería de Datos.* Course taught as part of the continuing education program Diplomado en Inteligencia de Mercados. Continuing Education Office, School of Economic Sciences. Universidad Nacional de Colombia. 2019.

- *Analítica de datos en mercadeo.* Course taught as part of the continuing education program [Diplomado en Inteligencia de Mercados](). Continuing Education Office, School of Economic Sciences. Universidad Nacional de Colombia. 2019.
- *Introducción a R.* Course taught as part of the continuing education program [Diplomado de Procesamiento y Análisis de Datos](). Continuing Education Office, School of Economic Sciences. Universidad Nacional de Colombia. 2019.

---

# Research

Since 2011, continuous and independent research statistical consultancy work has been carried out aiming at facing problems from different areas and providing answers from data analysis to research questions of various kinds.

### Influence of the technological level on the productivity and competitiveness of beekeepers in Cundinamarca

Rodrigo Chaves Ladino. ✉[rochavesl@unal.edu.co](mailto:rochavesl@unal.edu.co)

Degree thesis to qualify for the Master's degree in Management and Rural Development. School of Agricultural Sciences. Universidad Nacional de Colombia. 2022.

### Estimated net direct medical costs of breast cancer care in the general health social security system in Colombia

José Ricardo Urrego Novoa. ✉[jrurregon@unal.edu.co](mailto:jrurregon@unal.edu.co)

Degree thesis to qualify for the title of PhD. in Pharmaceutical Sciences. Universidad Nacional de Colombia. 2020.

### Articulation of secondary education with higher education in Bogotá Colombia: pedagogical implications in the local context

Elias Rivero Botello. ✉[elriver13@hotmail.com](mailto:elriver13@hotmail.com)

Degree thesis to qualify for the title of PhD. in education. UNAD. 2019.

### Risk sexual behaviors in university students: social representations and sexual satisfaction

Heidi Marcela Castro Hernandez. ✉[hmcastroh@unal.edu.co](mailto:hmcastroh@unal.edu.co)

Degree thesis for Master's in Clinical Psychology. Universidad Nacional de Colombia. 2019.

### Cost-effectiveness of aggressive treatment of early rheumatoid arthritis with conventional disease-modifying drugs compared with tumor necrosis factor alpha inhibitors in a cohort of Colombian patients

Jorge Augusto Diaz. ✉[jadiazr@unal.edu.co](mailto:jadiazr@unal.edu.co)

Degree thesis to qualify for the title of PhD. in Pharmaceutical Sciences. Universidad Nacional de Colombia. 2017.

### Evaluation of the performance factor of judges in Colombia

Omar Edgar Borja Soto. ✉[oborjas2502@gmail.com](mailto:oborjas2502@gmail.com)

Master's degree thesis in Administrative Law, Universidad Libre de Colombia. 2016.

**Relationship between the higher education academic program studied by young people from Bogotá between 18 and 24 years old and their attitude towards saving, indebtedness and money**

Helenora Sanchez Castillo. ✉heleonora.sanchezc@konradlorenz.edu.co

Degree work to opt for a Master's degree in Consumer Psychology. Fundación Universitaria Konrad Lorenz. 2016.

**Impact of training on the performance and perception of quality of work life of the Administrative Career and Free Appointment and Removal of the Ministry of National Education**

Lesly Andrea Prieto Huérfano and Diana Carolina Hernández Gualdrón. ✉dc.arte81@gmail.com

Degree work to opt for a Master's degree in Corporate Social Management, Universidad Externado de Colombia. 2015.

**Model of socio-technological cycles for socially and environmentally responsible products. Case: Intensive cutting of roses with human energy**

Gabriel Garcia Acosta. ✉ggarciaa@unal.edu.co

Degree work to opt for the title of Doctor in Technological Innovation Projects in Product and Process Engineering, Universitat Politècnica de Catalunya. 2015.

**Corporate Social Responsibility in Colombia: Characterization of CSR Practices against the Theory of Social Costs and their Relationship with the Business**

Gustavo Yepez. ✉gyepesl@gmail.com

Degree work to opt for the title of Doctor of Business Sciences, Antonio de Nebrija University. 2015.

**Evaluation of the effects of FCS-304 in rodent models of depression**

Laura Mercedes Moreno Hernandez. ✉lmmorenoh@unal.edu.co

Degree work to opt for the M.Sc. in Pharmacology, Universidad Nacional de Colombia. 2015

**Integration of occupational health and safety management in social responsibility**

Case study in five companies from Bogotá.

Carolina Hernandez Macias. ✉ing_carolinahernandezm@yahoo.com

Degree work to opt for the title of Master in Health and Safety at Work, Universidad Nacional de Colombia. 2015.

**A mathematical description of the evolutionary turnover of tRNAs in the genus Drosophila**

Liliana Constance Romero.

Degree work to opt for the title of Master of Science - Applied Mathematics, Universidad Nacional de Colombia. 2014.

**Refraction in infants aged 6 to 12 months using the non-cyclopegic and cyclopegic technique with tropicamide 1% cyclopentolate 1%, study conducted in Bogota 2012-2014**

Natalie Gutierrez. ✉natamu89@hotmail.com

Degree work to opt for the title of Magister in Vision Sciences, Universidad de La Salle. 2014.

**Impact of the palm heart harvest on the population structure and dynamics of Euterpe oleracea in the Colombian Pacific Coast**

Martha Isabel Vallejo. ✉mivallejoj@unal.edu.co

Degree work to opt for the title of PhD in Sciences - Biology, Universidad Nacional de Colombia. 2013.

**Accelerometric findings before, during and after ethanol exposure in patients with essential tremor**

Lorraine Arroyo. ✉lunawitch8@hotmail.com

Degree work to opt for the title of Master in Neurosciences, Universidad Nacional de Colombia. Meritorious thesis. 2013.

**Changes in symptoms, tear film and ocular surface after treatment with cyclosporine 1% and carboxymethylcellulose 0.5%, in moderate and severe dry eye syndrome**

Alejandra Mendivelso Suarez. ✉alejaam10@hotmail.com

Degree work to opt for the title of Magister in Vision Sciences, Universidad de La Salle. 2013.

**Relationship between intimate partner violence against women and the appearance of postpartum depression**

Edna Janneth Ramírez Bonilla. ✉nursedna@hotmail.com

Thesis presented as a requirement to qualify for the Master's degree in Nursing. Universidad Nacional de Colombia. 2012.

**Urinary tract infection: cost-disease study and demographic characterization in a third level clinic in Chía, Colombia**

Hernando Andres Olaya MD. Mauricio Hernandez Quintana MD. ✉maoherqui@hotmail.com

Master's Thesis in Pharmacology presented at Universidad de la Sabana. 2011.

**Evaluation of corneal and ocular aberrations by means of the high-order RMS index with two aspherical soft contact lenses in patients with low myopic astigmatism**

Elizabeth Suarez Piscotti. Natalie Rodriguez. ✉natamu89@hotmail.com

Undergraduate thesis in Optometry presented at Universidad de la Salle. 2011.

---

# Refetences

References will be sent under request.