Ana María Estrada Gómez

CONTACT INFORMATION

Mobile: +1 404 502 2236
Email: ameg3@gatech.edu
Web: https://sites.google.com/view/anamariaestradagomez

EDUCATION

Georgia Institute of Technology, Atlanta, GA
- *Ph. D. in Industrial Engineering - Statistics* — **Expected May, 2021**
- *M. Sc. in Statistics* — **2018**

Universidad de los Andes, Bogotá, Colombia
- *M. Sc. in Industrial Engineering* — **2015**
- *B. Sc. in Mathematics* — **2015**
- *B. Sc. in Industrial Engineering* — **2013**

RESEARCH INTERESTS

My research interests focus on developing efficient methodologies and algorithms for modeling, monitoring and diagnosing sensor networks with high-dimensional data, using statistic and machine learning tools. My research can be categorized into the following areas:

- **Modeling high-dimensional data networks:** develop new methodologies to learn the structure and estimate the parameters of high-dimensional data graphical models.
- **Modeling and monitoring dynamic streams of networks:** develop methodologies for data-driven modeling of temporal behavior and connectivity structures of systems with large-number of connected components.
- **Modeling, monitoring and diagnosing dynamic streams of incomplete data:** develop efficient and scalable algorithms for adaptive sampling of incomplete data for online monitoring.

PUBLICATIONS

Cabaña, A., Estrada, A. M., Peña, J. & Quiroz, A. J. (2017). Permutation tests in the two-sample problem for functional data. In Aneiros, G., Bongiorno, E.G., Cao, R. & Vieu, P. (Eds.), *Functional Statistics and Related Fields* (pp. 77-85). Springer Nature.

Cárdenas, J. H., Melo, G. A., Porras, J. D., Melo, M. C., Ramos, M. C. & Estrada, A. M. (2013). *Medición del impacto de los Egresados de UNIMINUTO, Sede Principal.* Corporación Universitaria Minuto de Dios.

Estrada, A. M., Paynabar, K. & Pacella, M. (2019). *Functional directed graphical models and applications in root-cause analysis and diagnosis.* Manuscript under revision.

Cabaña, A., Estrada, A. M., Peña, J., Quiroz, A. J. & Suarez, F. (2020). *Graph theoretical and functional depth ideas in permutation tests for the two-sample problem for functional data.* Manuscript submitted for publication.

Estrada, A.M., Li, D., Paynabar, K. (2020). *An adaptive sampling strategy for online monitoring of high-dimensional tensors.* Unpublished manuscript.

Estrada, A. M., Keskinocak, P., Paynabar, K., Sokol, J. (2020). *Time-to-transplant estimation for adult candidates in the U.S. Liver Allocation System.* Unpublished manuscript.

HONORS AND AWARDS

- Graduate Teaching Fellowship
  - Georgia Institute of Technology, Atlanta, GA, 2019 – 2020
- Tech to Teaching Certificate
  - Georgia Institute of Technology, Atlanta, GA, 2019
- Finalist for the QCRE best student poster competition
  - IISE Annual Conference, Orlando, FL, 2019
- Honorable mention poster award
  - Georgia Statistics Day Conference, Athens, GA, 2018
- William S. Green Fellowship
  - Georgia Institute of Technology, Atlanta, GA, 2016 – 2018
- Cum Laude Degree (GPA within the top 3% of the School of Engineering)
  - Universidad de los Andes, Bogotá, Colombia, 2013
- Excellence Fellowship
  - Universidad de los Andes, Bogotá, Colombia, 2009 and 2010

RESEARCH EXPERIENCE

School of Industrial and Systems Engineering
Georgia Institute of Technology, Atlanta, GA

- *Doctoral Thesis* (2016 – present): Monitoring and diagnosis for sensor networks with highdimensional data
  Research advisor: Dr. Kamran Paynabar
- *Research project* (2017 – present): Time-to-transplant estimation for adult candidates in the U.S. liver allocation system
  Research advisor: Dr. Kamran Paynabar & Dr. Pinar Keskinocak
- *Research project* (2019 – present): Structured Matrix Approximation by Separation and Hierarchy and Gaussian Processes
  Research advisor: Dr. Kamran Paynabar & Dr. Edmond Chow

Department of Mathematics
Universidad de los Andes, Bogotá, Colombia

- *B. Sc. Thesis* (2014 – 2015): Depth notions in functional data analysis
  Research advisor: Dr. Adolfo Quiroz

Department of Industrial Engineering
Universidad de los Andes, Bogotá, Colombia

- *M. Sc. Thesis* (2014 – 2015): Relevance of functional data analysis in human activity recognition
  Research advisor: Dr. María Elsa Correal and Dr. Carlos Valencia
- *B. Sc. Thesis* (2012 – 2013): Grade retention and school dropout in Colombia's middle schools: risk factors and predictive model.
  Research advisor: Dr. María Elsa Correal

TEACHING EXPERIENCE	**School of Industrial and Systems Engineering**	
	Georgia Institute of Technology, Atlanta, GA	
	Teaching Assistant – Topics on high-dimensional data analytics	Spring 2019
	Teaching Assistant – Topics on high-dimensional data analytics	Fall 2018
	• Participated in the course design and development	
	Teaching Assistant – Logistics	Summer 2017
	Teaching Assistant – Logistics	Spring 2017
	Teaching Assistant – Logistics	Fall 2016

Department of Mathematics
Universidad de los Andes, Bogotá, Colombia

Teaching Assistant – Calculus II	Fall 2014
Teaching Assistant – Calculus II	Spring 2014

Department of Industrial Engineering
Universidad de los Andes, Bogotá, Colombia

Teaching Assistant – Time series	Fall 2014
Teaching Assistant – Statistical linear models	Spring 2013
Teaching Assistant – Statistical linear models	Fall 2012

MENTORSHIP EXPERIENCE

Georgia Institute of Technology, Atlanta, GA

LOGRAS Mentor for new graduate students	Fall 2019

- LOGRAS is the Latino Organization of GRaduate Students
- Mentee: Sara Milkes

SURE Mentor	Summer 2018

- SURE stands for Summer Undergraduate Research in Engineering
- Mentee: Kevin Huang

INDUSTRY EXPERIENCE

DIRECTV, Bogotá, Colombia

Senior Analyst for Decision Analytics	2015 - 2016

- Designed and implemented forecast models for key performance indicators of the prepaid segment
- Developed statistical models in order to support business decisions

Oportunidad Estratégica, Bogotá, Colombia

Junior Consultant	2013 - 2015

- Worked for two different companies: Propaís (Colombian institution for the development of micro and small businesses) and UNIMINUTO (Colombian university)
- Created a clustering model for Colombias imports to find the most relevant opportunities for the micro and small businesses to replace imports with local products
- Managed relevant data bases for the design of UNIMINUTOS business intelligence model
- Performed statistical analysis of surveys taken by UNIMINUTOs alumni

Lumni Research, Bogotá, Colombia

Intern	2011

- Designed a process to guarantee the quality of the consulting projects undertaken
- Analyzed systematic mistakes made in the estimation of the salaries earned by Chilean students
- Assessed students and structuring funds

CONFERENCES	**Invited Conference Talks**

- Online monitoring of correlated, non-stationary and incomplete high-dimensional data streams

  – IISE 2020 Annual Conference, New Orleans, LA, 2020

- Functional directed graphical models and applications in root-cause analysis and diagnosis

  – INFORMS 2019 Annual Meeting, Seattle, WA, 2019

- Individual time-to-transplant estimation in the liver allocation system

  – INFORMS 2018 Annual Meeting, Phoenix, AZ, 2018

Contributed Conference Talks

- Functional directed graphical models and applications in root-cause analysis and diagnosis

  – IISE 2019 Annual Meeting, Orlando, FL, 2019

- Individual time-to-transplant estimation in the liver allocation system

  – IISE 2019 Annual Meeting, Orlando, FL, 2019

Poster Presentations

- Functional directed graphical models and applications in root-cause analysis and diagnosis

  – Foundations of Data Science Summer School, Atlanta, GA, 2019

  – WuFest, Atlanta, GA, 2019

  – Edge Intelligence Summit, Atlanta, GA, 2019

  – Georgia Statistics Day, Athens, GA, 2018

- Individual time-to-transplant estimation in the liver allocation system

  – Health Systems: The Next Generation 2018, Atlanta, GA, 2018

SERVICE & PROFESSIONAL ACTIVITIES	*Referee*: IEEE Transactions on Automation Science and Engineering, The Journal of Applied Statistics, TEST *Member*: INFORMS, IISE, LOGRAS
SKILLS	**Computer skills**: JMP, Julia, Matlab, R, SAS, SPSS, SQL, Tableau, Xpress-MP **Languages**: Spanish, English, French, Italian