Curriculum Vitae / Resume

Julián Villaquirá | jvillaquira3@gatech.edu

Industry Experience

- Associate Software Developer, ISI Markets *March 2025 - August 2025*
  1. *Implemented web scraping automations for the CEIC 10X project*
  2. *Automatization of article downloading, parsing and forwarding for REDD Intelligence on AWS*

- Senior Researcher, Quantil *July 2023 - November 2024*
  1. *Implemented algorithm for fuzzy deduplication of exportation data of Colombian business network*
  2. *Designed and implemented a computational solution for the reduction of food waste at stores*
  3. *Developed core functions for production optimization of a planning tool for the oil & gas industry*

- Junior Researcher, Quantil *February 2022 - June 2023*
  1. *Fundamental part of the development of a field planning tool for the oil & gas industry*
  2. *Modelling of problems across diverse areas of the industry (pricing of used vehicles, physics simulations of lime klins, pipeline usage optimization, etc.)*

Education

- PhD in Mathematics, Georgia Institute of Technology *August 2025 - present*

- MSc in Mathematics, Universidad de los Andes *August 2022 - May 2024*

- BSc in Mathematics, Universidad de los Andes *August 2018 - May 2021*

- BSc in Mechanical Engineering, Universidad de los Andes *January 2017 - May 2021*

Research Projects

- **Master:** Calderón's Inverse Problem via Neural Operators and Semi-Definite Optimization
  Advisor: Mauricio Junca

- **Undergraduate:** Localization of the Spectrum of Quadratic Pencils
  Advisor: Monika Winklmeier

- **Undergraduate:** Spectral Clustering Algorithm for Vehicle Routing Problems
  Advisor: Luis Ernesto Muñoz Camargo

Conferences

- Poster - Optimization Workshop *Bogotá, December 2024*
  Semi-Definite Optimization Approach for Calderón Inverse Problem

- Speaker - MAPI 3 (Conference of Applied and Industrial Mathematics) *Bucaramanga, June 2024*
  Neural Operators for Calderón Type Inverse Problems

Scholarships & Recognitions

- Scholarship & TA Position, Dept. of Mathematics at U. de los Andes *August 2022 - May 2024*
  For academic performance in undergraduate studies and results in graduate entrance exam

- Yerly Scholarship, Department of Mathematics at U. de los Andes *January 2021 - May 2021*
  For excellent academic performance in mathematics undergraduate degree

- Ser Pilo Paga Scholarship, Colombian Ministry of Education *January 2017 - December 2020*
  For excellent performance in a nationwide standardized test

- Andrés Bello Award *November 2016*
  For excellent performance in a nationwide standardized test

Teaching Experience

- Adjunct Professor of Mathematics, U. de los Andes *July 2024 - present*
  Problem session of differential calculus, linear algebra and ODE theory

- Teaching Assistant of Mathematics, U. de los Andes *August 2022 - May 2024*
  Problem session of differential and integral calculus, linear algebra and ODE theory

- Teaching Assistant of Mechanical Engineering, U. de los Andes *July 2021 - December 2021*
  Laboratory session of statics

- Teaching Practice of Mathematics, U. de los Andes *August 2020 - May 2021*
  Problem session of integral calculus and linear algebra

Volunteer Work

- Volunteer, Brillas Foundation (STEAMos) *October 2022 - present*
  Promote STEM education among underprivileged Colombian young girls in challenging home environments by leading educational puzzles and math-based activities

Skills and Personal Projects

- Languages
  English (Proficient) and Spanish (Mother Tongue)

- Programming Languages
  Proficient: Python, Julia, FreeFEM++, Bash
  Other tools: Git, Linux

- Personal Projects
  1. *GitHub projects: Fourier Transform of a Polytope, Advent of Code, Inverse FNOs and SDP Calderón Problem*
  2. *Short mathematical animations in YouTube*