Ignacio Tejeda

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Skills

Programming languages: Java, Python, Lean for mathematics formalization.

Education

Expected 2026	PhD in Mathematics at **University of Washington**; Advisor: Tatiana Toro.
2019	M.S. in Mathematics at **Universidad Católica de Chile**; Advisor: Georgi Raikov.
2017	B.S. in Mathematics at **Universidad Católica de Chile**.

Publications and Preprints

"On the geometry of measures with density bounds in a Hölder anisotropic setting" (2025). In: URL: https://arxiv.org/abs/2509.02954.

E. Cárdenas, G. Raikov, and I. Tejeda (2020). "Spectral properties of Landau Hamiltonians with non-local potentials". In: *Asymptotic Analysis* 120.3-4, pp. 337–371. DOI: 10.3233/ASY-191591. eprint: https://doi.org/10.3233/ASY-191591. URL: https://doi.org/10.3233/ASY-191591.

"Spectral asymptotics for compactly supported electric perturbations of the Landau Hamiltonian" (2019). In: URL: https://www.scribd.com/document/437262135/Master-s-Thesis-Ignacio-Tejeda.

"Sobre curvas en $\widehat{\mathbb{R}^d}$ con igual Schwarziana de Ahlfors" (2017). In: URL: https://www.scribd.com/document/366953307/Monografia.

"Sobre cómo definimos las funciones trigonométricas" (2016). In: *Revista del Profesor de Matemáticas* 2. URL: https://revistadelprofesor.files.wordpress.com/2016/01/ano9nro2_art_tejeda.pdf.

"Can we admit the way in which $\sin(x)$ is typically defined?" (2015). In: URL: https://arxiv.org/abs/1509.02488.

Mathematics formalization and AI

Part of my current activities include working at the intersection of mathematics and AI. My training in this direction includes a combination of courses taken, workshops attended, and ongoing projects on mathematics formalization.

Relevant courses

- Data Structures and Algorithms (CSE373) at UW
- Introduction to Artificial Intelligence (CSE415) at UW
- Design and Analysis of Algorithms (CSE521) (Motwani, Raghavan, *Randomized Algorithms*) at UW

Workshops

April, 2025 *Simons Institute for the Theory of Computing and SLMath Joint Workshop: AI for Mathematics and Theoretical Computer Science*

October, 2025 *Lean for PDEs, an ICARM & SLMath collaboration*

Projects

2025-present Mentor for *Math AI Lab* project *Formalizing Geometric Measure Theory*, at the University of Washington

Awards

2020-2023 McFarlan Fellowship, University of Washington
2018-2019 Beca de Arancel, Universidad Católica de Chile
2014-2017 Beca al Mérito Académico, Universidad Católica de Chile

Teaching

TA at Universidad Católica de Chile 2015 - 2019

Introduction to Calculus (MAT1600); Calculus 1 (MAT1610); Calculus 2 (MAT1620); Calculus 3 (MAT1630); Real Analysis (MAT2515); Integration Theory (MAT2535); Analysis II (MPG3101).

TA at University of Washington (Seattle) 2020 - present

Calculus with Analytic Geometry I (Math124); Calculus with Analytic Geometry II (Math125); Introduction to Mathematical Reasoning (MATH300); Fundamental Concepts of Analysis (MATH424); Fundamental Concepts of Analysis (MATH425).

Talks and poster presentations

• Workshop in Harmonic Analysis and PDE, University of Pittsburgh, *Posters session*, November 2025.

• AMS Fall Eastern Virtual Sectional Meeting, Research in Analysis and PDEs by Early Career Mathematicians, *On the geometry of measures with density bounds in a Hölder anisotropic setting*, October 26, 2025.

• 12th International Conference on Harmonic Analysis and Partial Differential Equations, El Escorial, *Posters session*, June 12, 2025.

• Analysis and PDE in MT, *Lightning talks*, May 14, 2025.

• Graduate Student Analysis Seminar, *Geometry of measures with Hölder density bounds in a Riemannian setting*, February 6, 2025.

• Graduate Student Analysis Seminar, *Lightning Talks*, October 10, 2024.

• Geometry of Measures and Free Boundaries: A Conference in Honor of Tatiana Toro, *Lightning talks*, July 22, 2024.

• Graduate Student Analysis Seminar, *Lightning Talks*, March 7, 2025.

• Graduate Student Analysis Seminar, *Lightning Talks in Analysis*, January 18, 2024.

• Graduate Student Analysis Seminar, *Unique Continuation at the Boundary*, May 18, 2023.

• Graduate Student Analysis Seminar, *Lightning Talks in Analysis*, March 30, 2023.

- Graduate Student Analysis Seminar, *An Introduction to Rectifiability, Part II: projections*, October 27, 2022.

Seminars organized

2024-2025 Graduate Student Analysis Seminar, University of Washington (with G. Mulcahy)

Musical performance and ensembles

In parallel with my career in mathematics, I have studied cello and joined several ensembles since 2009, and continue to pursue these musical activities to the present day.

Symphony orchestras

2021 - present	Cellist, *University of Washington Symphony Orchestra*
2017-2019	Principal cellist, *Orquesta Interfacultades Universidad Católica*
2017-2019	Principal cellist, *Camerata Interfacultades Universidad Católica*
2012	Cellist, *Orquesta Sinfónica Estudiantil Metropolitana* (OSEM)
Nov. 2012	Invited cellist, *Orquesta Sinfónica Nacional Juvenil* (OSNJ)
2009-2013	Cellist, *Orquesta Sinfónica Juvenil de Paine*

Chamber music ensembles

2024 - present	Cellist, *Syconia piano trio*
2023 - 2024	Cellist, *Rubatrio*
2023	Cellist, *Piano trio*