

# Israel Chigüil Tecúm-Ramos

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## EDUCATION

### Columbia University

New York, NY

*Bachelor of Arts in Mathematics*, Cumulative GPA 4.0047

May 2028

**Relevant Coursework:** Analysis & Probability I (PhD), Complex Analysis / Riemann Surfaces (PhD), Analysis II (PhD, audit), Algebraic Number Theory, Algebraic Curves, Honors Complex Variables, Honors Mathematics A, Honors Mathematics B

**Awards:** QuestBridge Scholar, Gates Scholar, Dell Scholar, Elks Scholar, Ronald Reagan Scholar, Burger King Scholar, Dean's List

**Programs:** HeadStart Fellowship (mentee), Point72 Cubist Quant Academy, DE Shaw Connect, MIT IEEE URTC, AMS JMM

## TECHNICAL SKILLS

**Tools/Programming:** Python (NumPy, pandas, Matplotlib), C++, MATLAB, LaTeX, Excel (VBA), PowerPoint

**Analytics:** Monte Carlo Simulation, Stochastic Processes, Fourier Analysis, Statistical Inference, Academic Writing, Communication

## PROFESSIONAL EXPERIENCE

### Columbia University Mathematics Department

New York, NY

*Undergraduate Researcher*

May 2025 - Present

- Built a graduate-level Python/C++ Monte-Carlo suite (10k+ lines, unit-tested) that simulates  $> 10^8$  steps/min on cluster nodes, validating analytic bounds to  $\pm 0.5\%$  and generating figures for two upcoming talks.
- Selected as the youngest amongst a cohort of (~8-12 total) graduate peers to engage a cutoff criterion for product chains on  $\mathbb{Z}_m^n$  by combining Nash inequalities with Professor Ivan Corwin's martingale central-limit framework.

*Teaching Assistant, Introduction to Mathematical Proofs (MATH2005UN)*

September 2025 - October 2025

- Created thorough LaTeX lecture notes/solutions; graded ~32 submissions per week with targeted feedback on validity.
- Led weekly discussion sections (~30-40 students) covering logic, set theory, group theory, and related proof structure.

*Lecturer, UMS Fourier Analysis (MATH4032GU) Summer Series*

June 2025 - September 2025

[https://drive.google.com/file/d/1sWy74zW5GZPySZZOC6L3Ik-Ovy2\\_BqsK/view?usp=sharing](https://drive.google.com/file/d/1sWy74zW5GZPySZZOC6L3Ik-Ovy2_BqsK/view?usp=sharing)

- Produced a six-page LaTeX lecture manuscript on Shakarchi normalization, Gaussian damping, and Plancherel's theorem.
- Delivered the hardest lecture (Week 6) of a seven-part summer series, deriving the Fourier integral on  $\mathbb{R}$  and proving the Fourier inversion theorem from first principles.

### Global Equity Management

New York, NY

*Global Head of Quant*

May 2025 - Present

- Lead the systematic investment portfolio process; chair weekly research and risk reviews across ~12 campuses.
- Scaled analyst education: refreshed GEM's 10-week Analyst Training with hands-on notebooks (valuation  $\rightarrow$  idea gen  $\rightarrow$  factor diagnostics) and created an advanced track that feeds into the quantitative portfolio team after fundamentalist training.

## LEADERSHIP DEVELOPMENT

### Jane Street

New York, NY

*FOCUS Fellow*

May 2025

- Participated in the program's Estimathon by delivering accurate bounds on 13 real-time Fermi problems in 30 minutes, achieving a median relative error  $< 5\%$ —demonstrating efficient team coordination.
- Selected as 1 of  $\approx 60$  fellows ( $< 1\%$  of 1,000+ applicants) for Jane Street's four-day program.

## PROJECTS / PUBLICATIONS

**Mixing-Time Lab – Coupling vs. Path-Coupling** | (Abstract Reasoning, Probabilistic Modeling, Collaboration)

New York, NY

*Undergraduate Researcher* | IEEE MIT URTC 2025 (*proceedings*), AMS JMM 2026 *Contributed Paper* (Washington D.C.) July 2025

<https://meetings.ams.org/math/jmm2026/meetingapp.cgi/Paper/52479>

- Sophomore scheduled for an AMS JMM Contributed Papers talk (not an undergrad-only track), presenting in front of faculty, postdocs, and PhD students; 10-minute talk + Q&A.
- First-ever research experience (freshman summer)  $\rightarrow$  peer-reviewed paper at IEEE MIT URTC '25 and an AMS JMM '26.
- Built a Monte-Carlo engine (Python/C++, ~10k LOC, unit-tested), achieving  $> 10^8$  steps/min on cluster nodes; validated coupling/path-coupling bounds to  $\approx \pm 0.5\%$  vs theory; full reproducibility provided.
- Youngest Columbia undergraduate appearing in a JMM contributed session; published by the American Mathematical Society at 19. Work selected for review by the ICM contributed-paper committee (flagship venue in mathematics).

## AFFILIATIONS

**Columbia Economics Society** | (Budgeting, Legal Compliance, Event Organizing, Fundraising)

New York, NY

*Business Representative*

September 2025 - Present