Daniel Carranza

Curriculum Vitae

━━━━ Education

2023–2029	**Ph.D. in Mathematics**, Johns Hopkins University
2022–2023	**Program Associate**, SLMath (formerly MSRI)
2021–2022	**M.Sc. in Mathematics**, University of Toronto
2017–2021	**B.Sc.**, Western University, Mathematics (Honours Spec.); Comp. Sci. (Minor)

━━━━ Publications

June 2023 — **Nonexistence of colimits in naive discrete homotopy theory**, *Applied Categorical Structures*, 31 (2023), no.5, 41, 6 pp.
With C. Kapulkin and J. Kim
https://arxiv.org/abs/2306.02219
https://link.springer.com/article/10.1007/s10485-023-09746-9

June 2023 — **Calculus of Fractions for Quasicategories**, Submitted
With C. Kapulkin and Z. Lindsey
https://arxiv.org/abs/2306.02218

June 2023 — **Diagonal Lemma for Presheaves on Eilenberg-Zilber Categories**, Submitted
With C. Kapulkin and L.-Z. Wong
https://arxiv.org/abs/2306.02217

December 2022 — **Cofibration category of digraphs for path homology**, *Algebraic Combinatorics* (to appear)
with B. Doherty, C. Kapulkin, M. Opie, M. Sarazola, and L.-Z. Wong
https://arxiv.org/abs/2212.12568

July 2022 — **The Hurewicz theorem for cubical homology**, *Mathematische Zeitschrift*, 305, 62 (2023)
With C. Kapulkin and A. Tonks
https://arxiv.org/abs/2207.12500
https://link.springer.com/article/10.1007/s00209-023-03352-0

February 2021 — **Cubical setting for discrete homotopy theory, revisited**, Submitted
With C. Kapulkin
https://arxiv.org/abs/2202.03516

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February 2021	**Homotopy groups of cubical sets**, *Expositiones Mathematicae*, 41 (2023) 125518, no. 4, 55 pp.
	With C. Kapulkin
	https://arxiv.org/abs/2202.03511
	https://www.sciencedirect.com/science/article/pii/S0723086923000944
January 2021	**2-adjoint equivalences in homotopy type theory**, *Logical Methods in Computer Science*, (2021), no. 1, Paper No. 3, 9 pp.
	With J. Chang, C. Kapulkin, and R. Sandford
	https://arxiv.org/abs/2008.12433
	https://lmcs.episciences.org/7124

Talks

Nonexistence of colimits in naive discrete homotopy theory

January 2024	Joint Mathematics Meeting, San Francisco, California

Calculus of fractions for quasicategories

March 2024	AMS Spring Southeastern Sectional Meeting, Florida State University
December 2023	Canadian Mathematical Society Winter Meeting, Montreal, Quebec
October 2023	Geometry, Topology and Physics seminar (online), NYU Abu Dhabi
March 2023	Algebraic Topology seminar, University of California, Los Angeles

Hurewicz Theorem in Discrete Homotopy Theory

November 2023	9th Mexican Workshop on Applied Geometry and Topology, Centro de Investigación en Matemáticas (CIMAT)

Cubical Setting for Discrete Homotopy Theory

December 2023	Geometric, Algebraic, and Topological Combinatorics, Mathematisches Forschungsinstitut Oberwolfach
April 2023	Math & Statistics Colloquium, Reed College
April 2023	Algebraic & Geometric Topology Seminar, University of Nevada-Reno
March 2023	AIM Workshop: Discrete and Combinatorial Homotopy Theory
November 2022	Berkeley Seminar, Topos Institute
	https://youtu.be/Ns1NBLMddps?si=ILsdvwPuKDbt-o7p
October 2022	AMS Fall Eastern Sectional Meeting, University of Massachusetts Amherst
May 2022	Ontario Combinatorics Workshop, University of Waterloo

Formalizing 2-adjoint equivalences in homotopy type theory

August 2020	Western Homotopy theory seminar, University of Western Ontario

Formal verification of Mathematics

August 2020   Canadian Undergraduate Mathematics Conference (online)

Scholarships and Awards

Summer 2021   **NSERC Undergraduate Student Research Award**, *Cubical Methods in Discrete Homotopy Theory*, Western University

Summer 2020   **NSERC Undergraduate Student Research Award**, *2-Adjoint Equivalences in HoTT*, Western University

2018-2021   **Dean's Honor List**

September 2017   **Western Scholarship of Excellence**

Teaching Experience

Teaching Assistant

Winter 2022   **Math Learning Centre**, University of Toronto

Winter 2022   **Engineering Calculus 2**, University of Toronto

Fall 2021   **Engineering Linear Algebra**, University of Toronto

Other Activities

December 2023   **Oberwolfach Workshop 2350: Geometric, Algebraic, and Topological Combinatorics**, *Participant*, Oberwolfach Research Institute for Mathematics

March 2023   **AIM Workshop: Discrete and Combinatorial Homotopy Theory**, *Participant*, San Jose, California

June 2022   **Higher Categories and Categorification, Part Two**, *Participant*, MSRI

February 2020   **Higher Categories and Categorification**, *Research Visit*, MSRI

October 2019   **Midwest Homotopy Type Theory Seminar**, *Conference*, University of Michigan

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