# Daniel Severo

Website: https://dsevero.com
Publications: https://scholar.google.com/citations?user=5bQjLz4AAAAJ

**ABOUT ME**

Research Engineer at FAIR in the Meta Superinteligence Labs. I work on advancing pre-training and inference-time compute of autoregressive next-token prediction, diffusion, and flow matching models at scale. In 2024 I obtained a Ph.D. from the University of Toronto and the Vector Institute for A.I. in generative modelling and information theory. I spent most of grad school interning at Meta (FAIR Labs) and Google AI. Before grad school I worked as an electronics engineer (hardware/firmware for embedded systems), as well as a machine learning engineer in recommendation systems and ML for health.

**SELECTED RECENT PROJECTS 2024/2025**

- Advancing flow matching pre-training (https://arxiv.org/abs/2412.03487)
- Reducing the number of forward passes for code generation with masked diffusion models, without re-training (https://arxiv.org/abs/2505.24857)
- Improving memory efficiency of vector databases (FAISS) via lossless compression, with no impact to search quality (https://arxiv.org/abs/2501.10479)
- Efficient learning and inference of distributions over permutations applied to re-ranking in recommendation systems (https://arxiv.org/abs/2505.24664)

**RESEARCH EXPERIENCE**

**Meta AI (Meta Superintelligence Labs - FAIR)**  Montreal, May/2024
*Research Engineer* in the Generative Modelling Foundations team

**Meta AI (FAIR Labs)**  New York, Aug/2023 - April/2024
*Research Scientist Intern* with Matthew Muckley

**Google AI**  Toronto, Jan/2022 - Jan/2023
*Student Researcher* with Lucas Theis and Johannes Ballé

**Meta AI (FAIR Labs)**  New York, Summer 2021
*Research Scientist Intern* with Karen Ullrich

**Vector Institute for AI**  Toronto, Fall 2020 - May 2024
*Student Researcher* with Alireza Makhzani

**EDUCATION**

**University of Toronto**
*Electrical & Computer Engineering*
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|---|---|
| - Doctor of Philosophy (Ph.D.) | Fall 2021 - Winter 2024 |
| - Master of Science (M.Sc., fast-tracked to Ph.D.) | Fall 2020 - Fall 2021 |
| - Undergraduate Exchange Program (1 year) | 2013 - 2014 |

**Federal University of Santa Catarina**, Brazil  2010 - 2015
*Bachelor of Science in Electronics Engineering*
First Class Honours, top 1% of graduates.

**OTHER PROFESSIONAL EXPERIENCE**

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|---|---|
| **3778 Healthcare** - *Machine Learning Engineer* | 2018 - 2020 |
| **Linx Impulse** - *Head of Data Science* | 2016 - 2018 |
| **CERTI Foundation** - Research Engineer | 2015 - 2016 |
| **Wavetech Technology** - *Embedded Systems Intern* | 2015 |
| **CERTI Foundation** - Electrical Engineering Intern | 2010 - 2013 |
| **WEG Industries** - *Electrical Engineering Intern* | Summers 2011 and 2012 |

**AWARDS**

**Finalist for the Meta Research PhD Fellowship** 2023
The Meta Research PhD Fellowship program awards PhD candidates conducting research on the cusp of emerging topics across computer science, engineering, and behavioral science. Over 3200 applicants, 62 finalists (top 2%), and 17 award winners.

**Vector Scholarship in AI Recipient 2020-21** 2020
The Vector Scholarship in AI supports the recruitment of top students to AI-related master's programs in Ontario and is valued at $17,500.
`https://vectorinstitute.ai/aimasters`

**NSERC Applied Research Rapid Response to COVID-19 Grant** 2020
Our project titled "Canadian Hospital Simulator For Management of COVID19 Cases and Contact Tracing" was awarded $75,000.00.
`https://www.nserc-crsng.gc.ca/Innovate-Innover/CCI-COVID_eng.asp`

**Virtual Design Challenge Winner** 2019
Won 1st place at the VDC hosted by The University of British Columbia with my paper *Proof of Novelty*. Received a cash prize of $3,000.
`https://github.com/dsevero/Proof-of-Novelty`

**Student Merit Award and Medal** 2015
Graduated with the highest GPA ever obtained (at the time) for my major. Elected "Best Student" by the faculty of Electrical & Electronics Engineering at the Federal University of Santa Catarina.

**Science Without Borders Scholarship** 2013
Awarded a full scholarship that covered tuition, transportation, necessary materials and living costs to study 2 academic semesters at the University of Toronto.