

<b>BIO &amp; RESEARCH INTERESTS</b>	Broadly, my interests are information theory, generative modeling, and data compression. Current compression algorithms are not well suited to handle structured and high-dimensional data, such as images and graphs. I'm interested in building computationally efficient compressors for structured data that can be used with deep generative models. I have 5 years of industry experience applying machine learning to real-world problems, as well as open-source contributions to large projects such as Dask and NeuralCompression.		
<b>EDUCATION</b>	<b>University of Toronto</b>		
	<i>Electrical &amp; Computer Engineering</i>		
	- Doctor of Philosophy (Ph.D.)		Started Fall 2020
	- Undergraduate Exchange Program (1 year)		2013 - 2014
	<b>Federal University of Santa Catarina, Brazil</b>		2010 - 2015
	<i>Bachelor of Science in Electronics Engineering</i>		
	First Class Honours, 99th percentile.		
<b>RESEARCH EXPERIENCE</b>	<b>Google AI</b>	Toronto, Jan/2022 - Now	
	<i>Student Researcher</i> with Lucas Theis and Johannes Ballé		
	<b>Meta AI (previously FAIR)</b>	New York, Summer 2021	
	<i>Research Scientist Intern</i> with Karen Ullrich		
	<b>Vector Institute for AI</b>	Toronto, 2020 - Current	
	<i>Ph.D. Student Researcher</i> with Alireza Makhzani		
<b>FIRST AUTHOR PUBLICATIONS</b>	Ruan*, Yangjun, Karen Ullrich*, Daniel Severo*, et al.: <i>Improving Lossless Compression Rates via Monte Carlo Bits-Back Coding</i> . Accepted as a Long Talk at ICML 2021. arXiv: 2102.11086 [cs.LG].		
	Severo, Daniel, Elad Domanovitz, and Ashish Khisti: <i>Regularized Classification-Aware Quantization</i> . Accepted at BSC 2021. arXiv: 2107.09716 [cs.LG].		
	Severo*, Daniel, James Townsend*, Ashish Khisti, et al.: <i>Compressing Multisets with Large Alphabets</i> . Accepted to Data Compression Conference 2022. 2021. arXiv: 2107.09202 [cs.IT].		
	— <i>Your Dataset is a Multiset and You Should Compress it Like One</i> . Accepted as a Talk in Deep Generative Models and Downstream Applications Workshop @ NeurIPS 2021. 2021.		
<b>OTHER PUBLICATIONS</b>	Domanovitz, Elad, Daniel Severo, Ashish Khisti, et al.: "Data-Driven Optimization for Zero-Delay Lossy Source Coding with Side Information". In: <i>ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)</i> . IEEE. 2022, pp. 5203–5207.		
	Reys, Arthur D., Danilo Silva, Daniel Severo, et al.: <i>Predicting Multiple ICD-10 Codes from Brazilian-Portuguese Clinical Notes</i> . Accepted at BRACIS 2020. arXiv: 2008.01515 [cs.CL].		
	Silva, Henrique P., Arthur D. Reys, Daniel S. Severo, et al.: <i>Predição de Incidência de Lesão por Pressão em Pacientes de UTI usando Aprendizado de Máquina</i> . Accepted to XVIII Congresso Brasileiro de Informática em Saúde (CBIS 2021). 2021. arXiv: 2112.13687 [cs.LG].		

## PREPRINTS

Severo, Daniel, Flávio Amaro, Estevam R. Hruschka Jr, et al.: *Ward2ICU: A Vital Signs Dataset of Inpatients from the General Ward*. 2019. arXiv: 1910.00752 [cs.LG].

## AWARDS

**Best Paper Award at NeurIPS Workshop** 2021  
*Your Dataset is a Multiset and You Should Compress it Like One* received the Best Paper Award at the Deep Generative Models and Downstream Applications workshop at NeurIPS 2021.

**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](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.

## ACADEMIC SERVICES

**Transactions on Machine Learning Research (TMLR)**  
- Reviewer June/2022 - Now

## TEACHING EXPERIENCE

**Federal University of Santa Catarina - Teaching Assistant**  
- Communications Theory Fall and Winter 2015  
- Introduction to Electronics Fall and Winter 2013  
- Single-Variable Calculus Fall 2010

**CERTI Foundation - Programming Instructor** 2010 - 2013

## OPEN SOURCE CONTRIBUTIONS

**Craystack**  
- <https://github.com/j-towns/craystack/pulls?q=author:dsevero>

**Neural Compression**  
- <https://github.com/facebookresearch/NeuralCompression>

**Dask & Dask-ML**  
- <https://github.com/dask/dask/pulls?q=author:dsevero>  
- <https://github.com/dask/dask-ml/pulls?q=author:dsevero>

## OTHER PROFESSIONAL EXPERIENCE

**3778 Healthcare - Machine Learning Engineer** 2018 - 2020  
**Linux 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