

## EDUCATION

### University of Toronto

*Electrical & Computer Engineering*

Master of Applied Science (M.A.Sc.)

Starting Fall 2020

Undergraduate Exchange Program (1 year)

2013 - 2014

### Federal University of Santa Catarina, Brazil

2010 - 2015

*Bachelor of Science in Electronics Engineering*

First Class Honours, 99th percentile.

## AWARDS

### Vector Scholarship in Artificial Intelligence 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.

## PUBLICATIONS

Reys, Arthur D., Danilo Silva, Daniel Severo, et al.: *Predicting Multiple ICD-10 Codes from Brazilian-Portuguese Clinical Notes*. Accepted at BRACIS. 2020. arXiv: 2008.01515 [cs.CL].

## PREPRINTS

Severo, Daniel: *A Report on the Ziggurat Method*. 2020. DOI: 10.6084/m9.figshare.10324868.v1.

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].

## TEACHING EXPERIENCE

### Federal University of Santa Catarina

#### *Teaching Assistant*

Assisted professors by ministering tutorials, preparing lecture materials and helped students individually at regular office hours.

- **Communications Theory** Fall and Winter 2015  
Amplitude and frequency modulations; multiplexing; noise in communication systems; pulse modulation; analog-to-digital conversion; digital transmission in baseband and passband.
- **Introduction to Electronics** Fall and Winter 2013  
Operational amplifiers; diodes; the bipolar junction transistor; field effect transistors; optoelectronic components.
- **Single-Variable Calculus** Fall 2010  
Real-valued functions; limits; continuity; derivatives and applications; definite and indefinite integrals; integration techniques; improper integrals.

### CERTI Foundation

2010 - 2013

#### *Intern Programming Instructor*

Responsible for the technical training of new and current interns. Created a training course in LabVIEW programming that is still in use as of 2020.

## PROFESSIONAL SERVICE

### NeurIPS 2019: Conference on Neural Information Processing Systems

Reviewer for the Machine Learning for Health (ML4H) workshop.

## OPEN SOURCE CONTRIBUTIONS

### Dask: Scalable analytics in Python

<https://github.com/dask/dask/pulls?q=author:dsevero>

### Dask-ML: Scalable Machine Learn with Dask

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

### Ward2ICU: A Vital Signs Dataset of Inpatients from the General Ward

<https://github.com/3778/Ward2ICU>

## PROFESSIONAL EXPERIENCE

### Vector Institute for Artificial Intelligence

2020 - Current

#### *Graduate Student Researcher*

Currently working on machine learning and information theory (source coding).

### Independent Contractor

2018 - Current

#### *Machine Learning Engineer & Researcher*

Developed a Fast Healthcare Interoperability Resources DataLake for running high volume machine learning models; Feature engineering and mathematical modeling for clustering algorithms used to segment patients into similar health groups; Ranked patients by future spendings using financial data achieving a precision at  $n=1,000$  of 50% from a 15,000 total; Predicted patient LoS (Length of Stay) with regression techniques and hospital sensor data; Modified CoSimRank to create a similarity measure between developers and companies using Stack Overflow data using Neo4j and Python.

### Linx Impulse

2016 - 2018

#### *Head of Data Science*

Developed recommendation algorithms for E-commerce customers; Provided ad-hoc big data analyses to find insights from our data; Designed and monitored competitive A/B experiments devised to validate our systems performance in the face of competition; Internal A/B testing tool using the SciPy and Jupyter stack; Bandit algorithms for online optimization

### Wavetech Technology Solutions

2015

#### *Embedded Systems Engineering Intern.*

Worked on microcontroller programming in C/C++ for cochlear implants.

**CERTI Foundation** 2010 - 2013 (Intern.)  
Implemented signal processing routines (filter design 2015 - 2016 (R. Eng)  
and realization) in C; Programmed back-end and front-end Python software for Raspberry  
Pi; Embedded eLua on a platform previously developed by CERTI.

**WEG Industries** Summers 2011 and 2012  
*Electrical Engineering Intern.*  
Software upgrade, in LabVIEW, of an automatic calibrator of multimeters in order to  
account for different input frequencies; Conception and implementation of a hardware and  
software (LabVIEW) system that acquires, processes and stores data of specific parameters  
of electric motors.

## REFERENCES

**Prof. Ashish Khisti** University of Toronto  
*Professor and Canada Research Chair (Tier II)*  
*Department of Electrical & Computer Engineering*  
<https://www.comm.utoronto.ca/~akhisti/>

**Prof. Alireza Makhzani** Vector Institute  
*Faculty member at the Vector Institute for Artificial Intelligence*  
*Adjunct Professor and Canada CIFAR AI Chair*  
*Department of Electrical & Computer Engineering*  
<http://www.alireza.ai/>

**Prof. Danilo Silva** Federal University of Santa Catarina  
*Associate Professor*  
*Department of Electrical and Electronic Engineering*  
<http://danilosilva.sites.ufsc.br/index.html>

**Prof. Chen Feng** The University of British Columbia  
*Assistant Professor*  
*School of Engineering*  
<https://people.ok.ubc.ca/cfeng01/index.html>

**Prof. Frank R. Kschischang** University of Toronto  
*Distinguished Professor of Digital Communication*  
*Department of Electrical & Computer Engineering*  
<https://www.comm.utoronto.ca/frank/>