

- BIO & RESEARCH INTERESTS** My research interests are information theory and coding theory, and, more broadly, communications, especially multi-user communication. My current research is on streaming codes, a class of codes designed for low-latency setting under packet loss models. Current error-correction techniques are inefficient in low-latency scenarios, and most effort has been destined to building private networks, thus improving infrastructure and reducing delay through more efficient routing and better network conditions. However, latency can be improved on the communication side, with a considerably less costly approach, by designing proper codes and techniques for this specific scenario.
- EDUCATION**
- | | |
|--|--------------|
| University of Toronto , Canada | 2019-present |
| <i>Doctor of Philosophy in Electrical & Computer Engineering</i> | |
| Streaming codes. | |
| Federal University of Santa Catarina , Brazil | 2017 - 2019 |
| <i>Master of Science in Electrical Engineering</i> | |
| Information theory and massive random access. | |
| Federal University of Santa Catarina , Brazil | 2012 - 2017 |
| <i>Bachelor of Science in Electrical Engineering</i> | |
| Communications. | |
- PUBLICATION AWARDS**
- | | |
|---|------|
| Best Communications Paper | 2019 |
| <i>XXXVII Brazilian Symposium on Telecommunications and Signal Processing</i> | |
| Best Undergraduate Paper | 2016 |
| <i>XXXIV Brazilian Symposium on Telecommunications and Signal Processing</i> | |
- JOURNAL PUBLICATIONS**
- [1] G. K. Facenda and D. Silva, *Efficient scheduling for the massive random access Gaussian channel*, Published in IEEE Trans. on Wireless Comm., 2020.
- PREPRINTS**
- [2] G. K. Facenda, E. Domanovitz, A. Khisti, *et al.*, “Streaming erasure codes over multi-access relay networks,” 2021, Submitted to IEEE Transactions on Information Theory. [Online]. Available: <https://arxiv.org/abs/2101.11117>.
- CONFERENCE PUBLICATIONS**
- [3] E. Domanovitz*, G. K. Facenda*, A. Khisti, *et al.*, *Guaranteed rate of streaming erasure codes over multi-link multi-hop network*, *Equal contribution. Accepted in 2021 ITW., 2021.
- [4] N. K. M. Krishnan*, G. K. Facenda*, E. Domanovitz*, *et al.*, *High rate streaming codes over the three-node relay network*, *Equal contribution. Accepted in 2021 ITW., 2021.
- [5] G. K. Facenda, E. Domanovitz, A. Khisti, *et al.*, *Streaming erasure codes over multi-access relay networks*, Published in 2021 ISIT, 2021.
- [6] H. da Silva, G. K. Facenda, and D. Silva, *Activity detection for the massive random access Gaussian channel using compressive sensing**, *English translation. Published in Portuguese in 2020 SBrT., 2020.
- [7] G. K. Facenda and D. Silva, *An efficient grant-based scheme for the massive random access Gaussian channel*, Published in 2019 SBrT. Best communications paper award., 2019.
- [8] —, *PSK and FSK Discrimination Using Higher-order Statistics**, *English translation. Published in Portuguese in 2017 SBrT., 2017.

- [9] —, *PSK and FSK Discrimination Based on Higher-order Statistics**, *English translation. Published in Portuguese in 2016 SBrT in poster format. Best undergraduate paper award., 2016.

TEACHING EXPERIENCE

University of Toronto - *Teaching Assistant*

- Introduction to Machine Learning

2020-present

Federal University of Santa Catarina - *Teaching Assistant*

- Communication Systems

2015-2016

- Software-Defined Radio

2017

WORK EXPERIENCE

LINSE - Circuit and Signal Processing Laboratory - *R&D Internship in Communications, DSP and Security*

2013 - 2017

- Activities included research and development in partnership with a local communications company, working in a team of five to ten students. Projects included developing and implementing DTMF detectors; implementing voice CODECs in Blackfin Assembly; researching, developing and implementing modulation classifiers in software-defined radio; developing and implementing an automatic voice descrambler.

- In 2016 and 2017, activities also included training students new to the group in C, MATLAB and Analog Devices' Blackfin Assembly.

OTHER SKILLS

Intermediate Level

C, MATLAB, Analog Devices' Blackfin Assembly, GNU Radio, Simulink

Beginner Level

Python, Javascript, Linux

OTHER EXPERIENCES

Chair of Undergraduate Session

2020

XXXVIII Brazilian Symposium on Telecommunications and Signal Processing

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. Danilo Silva

Federal University of Santa Catarina

Department of Electrical and Electronic Engineering

<https://danilosilva.sites.ufsc.br/>