João Atz Dick

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Education

MASc in ECE *Toronto, Canada*

University of Toronto: Edward S. Rogers Sr. Department of ECE *2023 - present*

Topics: Machine Learning, Neural Compression, Decentralized Learning.

Advisor: Prof. Ashish Khisti

BASc in Computer Engineering *Porto Alegre, Brazil*

Federal University of Rio Grande do Sul (UFRGS) · Last 2 Years GPA: 9.63/10 *2022*

Thesis: Latent Space Representation and Manipulation of StyleGANs · Grade: 10/10 (A)

Publications

Quality and Complexity Assessment of Learning-Based Image Compression Solutions *DOI: 10.1109/ICIP42928.2021.9506136*

João Dick, Brunno Abreu, Mateus Grellert, Sergio Bampi *September, 2021*

2021 IEEE International Conference on Image Processing (ICIP)

Awards

2023	**Vector Scholarship in AI Recipient 2023-24** · Vector Institute
	The Vector Scholarship in AI supports recruiting exceptional students to AI-related master's programs in Ontario, valued at $17,500.
2022	**BRASA PreGrad Mentee** · Brazilian Student Association (BRASA)
	The PreGrad Mentorship program selects students with an excellent academic background, supporting their application process to international graduate programs.
2021	**2nd Place** · IEEE School on Digital Processing of Visual Signals and Applications (DPVSA)
	Placed second at the DPVSA Computer Vision Challenge on visual sports monitoring. Awarded a fast-track into a research internship at Pix Force.
2021	**Best Undergraduate Poster Award** · IEEE Circuits and Systems Society Workshop (CASSW-RS)
	Best undergraduate poster for *Quality and Complexity Assessment of Learning-Based Image Compression Solutions*.
2021	**Best Undergraduate Paper Award** · South School and Symposium on Microelectronics (EMicroSIM)
	Best undergraduate paper for *Quality and Complexity Evaluation of Learning-Based Image Compression Techniques*.
2020	**DAC Young Student Fellow Best Research Presentations** · Design Automation Conference (DAC)
	Ranked among the best research presentations out of 100 participants, receiving a $100 cash prize.
2020	**DAC Young Student Fellow** · 2020 Design Automation Conference (DAC)
	The DAC Young Fellows program recruits promising early-stage student researchers, covering the conference's registration fees and up to $1200 in travel and accommodation expenses.
2016	**2nd Place** · Federal University of Rio Grande do Sul (UFRGS)
	Ranked second among the 42 admitted students to the BASc on Computer Engineering program.

Experience

Machine Learning Engineer *Florianopolis, Brazil*

Coleção.moda *October, 2022 - May, 2023*

· Implemented Latent Diffusion models for image generation.

· Applied Data Science analysis concepts to consumer data.

Undergraduate Research Assistant *Porto Alegre, Brazil*

Graduate Program of Computer Science · UFRGS · Advised by Prof. Manuel M. Oliveira *January, 2022 - October, 2022*

· Performed research exploring latent space arithmetic in SyleGANs.

· Applied Generative Modeling and GAN Inversion concepts using TensorFlow and PyTorch.

Research Intern
PIX FORCE: COMPUTER VISION AND IMAGE PROCESSING

Porto Alegre, Brazil
January, 2022 - May, 2022

- · Developed computer vision applications for sports performance monitoring.
- · Improved object localization and segmentation algorithms based on concepts from scientific papers.

Undergraduate Research Assistant
GRADUATE PROGRAM OF COMPUTER SCIENCE · UFRGS · ADVISED BY PROF. MANUEL M. OLIVEIRA

Porto Alegre, Brazil
July, 2021 - January, 2022

- · Developed applications for the capturing step in low-light video enhancement pipelines for mobile devices.
- · Utilized the Camera2 API in Android Studio to implement low-light video recording functions.

Undergraduate Research Assistant
GRADUATE PROGRAM OF MICROELECTRONICS · UFRGS · ADVISED BY PROFS. SERGIO BAMPI AND MATEUS GRELLERT

Porto Alegre, Brazil
July, 2018 - December, 2021

- · Performed research in diverse subjects such as IC design, video coding, and learning-based image compression.
- · Developed dedicated hardware arithmetic operators for computational intensive video coding operations.
- · Evaluated perceptual metrics' impact in the inter-frame motion estimation module of the HEVC video coding standard.
- · Assessed the rate-distortion-complexity tradeoff present in learning-based image compression models.

Conference Presentations

IEEE Seasonal School on Digital Processing of Signals and Applications (DPVSA)
POSTER PRESENTATION: QUALITY AND COMPLEXITY ASSESSMENT OF LEARNING-BASED IMAGE COMPRESSION SOLUTIONS
CHALLENGE PRESENTATION: COMPUTER VISION CHALLENGE - SOCCER MATCH MONITORING

Virtual
October, 2021.

IEEE Circuits and Systems Society Workshop (CASSW-RS)
POSTER PRESENTATION: QUALITY AND COMPLEXITY ASSESSMENT OF LEARNING-BASED IMAGE COMPRESSION SOLUTIONS

Virtual
September, 2021.

IEEE International Conference on Image Processing (ICIP)
PAPER PRESENTATION: QUALITY AND COMPLEXITY ASSESSMENT OF LEARNING-BASED IMAGE COMPRESSION SOLUTIONS

Virtual
September, 2021.

South School and Symposium on Microelectronics (EMicroSIM)
PAPER PRESENTATION: QUALITY AND COMPLEXITY EVALUATION OF LEARNING-BASED IMAGE COMPRESSION TECHNIQUES

Virtual
April, 2021.

Design Automation Conference (DAC)
VIDEO PRESENTATION: 2-MINUTE PAPER PRESENTATION AS PART OF THE 2020 DAC YOUNG STUDENT FELLOW PROGRAM
CURRENT RESEARCH PRESENTATION: LEARNING-BASED COMPRESSION

Virtual
July, 2020.

Certificates

Introduction to TensorFlow for AI, ML, and DL
COURSERA
Introductory Course on Machine Learning Techniques

Virtual
2021

High Level Synthesis Tutorial
CADENCE DESIGN SYSTEMS
Logical Synthesis of Hardware Accelerators for Image Recognition Neural Networks

Virtual
2020