Nicolas Kolling Ribas

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EDUCATION

- **Federal University of Rio Grande do Sul** — Porto Alegre, Brazil
  Master of Science (MSc), Computer Science — *2022 – Present*

- **Federal University of Fronteira Sul** — Chapecó, Brazil
  Bachelor of Science (BSc), Computer Science — *2017 – 2022*

EXPERIENCE

- **Federal University of Rio Grande do Sul**
  Graduate Student Researcher and Teaching Assistant — *December 2022 – September 2023*
    - **Research**: I conducted research on using the Discrete Wavelet Transform to detect periodic behavior in network traffic. I implemented the technique directly in the data plane using eBPF in the Linux Kernel for line rate processing. The work led to the publication of a paper.
    - **Teaching Assistant - Computer Networks**: Supported course lectures, prepared detailed answer keys for exercise lists, and assisted students through in-person consultations and developing written materials.

- **Federal University of Fronteira Sul**
  Undergraduate Researcher and Teaching Assistant — *November 2020 – March 2022*
    - **Undergraduate Research**: Developed a new variant of a protocol for a self-organizing cluster of brokers, providing a well-structured mechanism for building and orchestrating the federation of brokers, which led to the publication of a paper. I implemented a prototype that follows a sidecar-like pattern and provides the federation capabilities to brokers without requiring changes to the MQTT protocol or the inner workings of the brokers.
    - **Teaching Assistant - Algorithms and Programming**: Provided support for course lectures by assisting students through online consultations.

- **University IT Department**
  Web Development Intern — *June 2019 – June 2021*
    - **Institutional website**: Customizing the university institutional website's CMS using Python and VanillaJS. I worked on significant refactoring to speed up the search/retrieval engine for official documents—also managed on the institutional website.
    - **Internal systems**: I also worked on building integrations with the Government Economics Ministry's systems for economic data sharing to solve the university's accountability requirements.