Thiago Nascimento

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SUMMARY
Doctoral researcher in hydrology at Eawag and the University of Zurich, specializing in large-sample hydrology, geospatial data, and streamflow prediction. Experienced in developing continental-scale datasets, reproducible workflows, and open-source software.

PROFESSIONAL EXPERIENCE
Doctoral Researcher: Eawag/ University of Zurich, Switzerland [Mar 2023 – Present]
- Conduct research to improve flow prediction under climate change using process-based and machine-learning models.
- Developed of geospatial analysis products (maps, zonal statistics, reports) using QGIS and Python-based GIS workflows.
- Designed automated Python workflows for large-scale data collection, processing, validation, and uncertainty analysis.
- Primary developer of EStreams (www.estreams.eawag.ch), a large-sample dataset of environmental variables covering thousands of catchments across Europe.
- Assessed the influence of different input datasets on hydrological model performance, identifying data-source uncertainties and improving model robustness by up to 70% across large-sample experiments.
- Collaborated with a researcher from Google Research in the development of RivRetrieve.py, an open-source library that automates river data collection and harmonization via web-scraping and APIs across 50+ countries.
- Communicated technical results and methodologies effectively through 6+ peer-reviewed publications, technical documentation, and international conferences.

Research Assistant: University of Lisbon, Portugal [Oct 2022 – Mar 2023]
- Investigated climate and land-use impacts on hydrological systems using remote sensing and GIS tools.
- Built and calibrated process-based hydrological models (SWAT) to simulate streamflow in arid and semi-arid regions.
- Conducted quantitative analyses of hydrological vulnerability to climate-risk in the Iberian Peninsula.

Undergraduate Research Fellow: Federal University of Paraiba, Brazil [Jul 2018 – Apr 2020]
- Used remote sensing and programming tools for the analysis of deforestation, droughts, and coastal shoreline dynamics.
- Findings contributed to 8+ peer-reviewed publications on spatial risk and environmental change.

TECHNICAL SKILLS
Programming & Data Science: Python (Pandas, NumPy, SciPy, xarray, GeoPandas, scikit-learn), TensorFlow, R, MATLAB
Modeling & Analytics: modelling, machine learning, uncertainty, statistical inference, HPC, workflow automation
GIS & Geospatial Analytics: QGIS, ArcGIS, Google Earth Engine; geospatial databases, NetCDF, GeoTIFF, GeoJSON, Shapefiles
Collaboration & Reproducibility: Git, GitHub, Jupyter Notebooks, Conda environments
Languages: Portuguese (native); English (advanced), Spanish and German (intermediate) and French (basic)

LEADERSHIP AND PROJECTS
Project Lead: Development of the EStreams and co-developer of the CAMELS-CH-Chem hydrological datasets [2024, 2025]
Contributor: RivRetrieve-Python, open-source package for global streamflow data access [2025 – Present].
Teaching Assistant: Eawag Summer School in Bayesian Methods; University of Zurich (2 editions, 30 students) [2024, 2025]
Co-Supervisor: Two MSc students hosted at Eawag [2023, 2024]

EDUCATION
PhD in Hydrology (ongoing): University of Zurich / Eawag, Switzerland [Mar 2023 – Present]
MSc in Hydro Science and Engineering: Joint Degree (Erasmus Mundus GroundwatCH) – TU Dresden (Germany), IHE Delft (Netherlands), and University of Lisbon (Portugal); Graduated with distinction [Sep 2020 – Sep 2022]
MSc in Water Resources: Federal University of Paraiba, Brazil [Apr 2020 – Dec 2021]
BSc in Civil Engineering: Federal University of Paraiba, Brazil [Jul 2015 – Apr 2020]

PUBLICATIONS
Author and co-author of 15+ peer-reviewed publications in high-impact journals, including *Nature Scientific Data*, *Science of the Total Environment*, *Hydrology and Earth System Sciences* (500+ citations). Full publication list available on Google Scholar.

REFERENCES
- Dr. Fabrizio Fenicia: Eawag, Switzerland. **PhD main supervisor**. Contact: fabrizio.fenicia@eawag.ch
- Prof. Jan Seibert: University of Zurich, Switzerland. **PhD supervisor**. Contact: jan.seibert@geo.uzh.ch
- Dr. Frederik Kratzert: Google Research, Austria. **Collaborator**. Contact: kratzert@google.com