# **NIELS ROCHOLL**

I am a PhD candidate at the Diagnostic Image Analysis Group (RadboudUMC), where I work on extending lesion segmentation models to the longitudinal domain. By leveraging temporal imaging data, I develop systems that track and segment lesions over time, supporting more accurate diagnosis and treatment planning. My research is closely connected to clinical practice, and I collaborate with radiologists to ensure our methods address real clinical needs. More broadly, I'm driven by applying state-of-the-art research to solve complex, real-world problems, both within and beyond the medical domain.



## **CONTACT**

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in Niels Rocholl

## **SKILLS**

**Programming** 

Python Matlab

LaTeX R

C++

Version Control

Git GitHub GitLab

Libraries

Pytorch
Pytorch Lightning

NumPy WandB scikit-learn Matplotlib

Keras TensorFlow OpenCV

Languages

Dutch English German

# **WORK HISTORY**

12/2024 - PresentRadboudUMC

PhD Candidate

Working on the OncoFuture project, focusing on robust, longitudinal lesion segmentation and tracking using AI.

Supervisors: Dr. Alessa Hering, Dr. Ewoud Smit, and Prof. Dr. Mathias Prokop.

**1** 09/2023 - 09/2024

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Graduate Research Intern Al

Master's Thesis: Self-Supervised Representation Learning in Point Clouds for Hierarchical Graph-Based Anatomical Structure Identification (Graded 9.5/10).

Supervisors: Dr. Matthia Sabatelli & Dr. Thomas Markus.

**1** 09/2019 - 08/2024

**Q** University of Groningen

Teaching Assistant / Developer

Responsibilities included developing custom software solutions, advising staff on E-learning tools, and supporting the pilot of a new E-learning tool suite (FeedbackFruits).

## **EDUCATION**

**1** 09/2021 - 09/2024

• University of Groningen, Groningen

M.S. in Artificial Intelligence

Specialization in Computational Intelligence. Graduated judicium Cum Laude (8.5).

**6** 09/2017 - 07/2021

**♀** University of Groningen, Groningen

B.S. in Artificial Intelligence

Thesis: "Isolating Wildfires using a Convolutional Neural Network based Multi-Agent System" (Graded 8/10). Supervisor: Dr. Marco Wiering.

## MACHINE LEARNING PROJECTS

- Identifying writer styles in the Dead Sea Scrolls.
- Autoencoder-based dimensionality reduction for fluid flow simulation data.
- Robotic grasping in cluttered environments.
- Backpropagation and Stochastic Gradient Descent from scratch.
- Simulated wildfire isolation using a CNN-based MAS.
- Investigating the hyperplane properties of the Rosenblatt Perceptron Algorithm.
- Dueling deep Q-learning for the game of Catch.
- Completing Bach's unfinished fugue.
- Acute myeloid leukemia detection in flow cytometry data.

## MACHINE LEARNING SKILLS

Distributed Training Self-supervised Learning Graph Neural Networks

Reinforcement Learning Transfer Learning Computer Vision

Dimensionality Reduction Scientific Visualization Experiment Tracking

Time Series Prediction Clustering