

Mads Knudsen

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Profile

Computer science graduate in first year of Master's (Cand.scient.) focusing on backend systems and data processing. Primarily works in C++ for performance-critical applications with Python for tooling and analysis.

Education

M.Sc. (Cand.scient.) in Computer Science, Aalborg University 2025 – present

B.Sc. in Computer Science, Aalborg University 2022 – 2025

Technical Skills

Programming Languages: C++ (primary), Python, Java, SQL, JavaScript

Libraries & Tools: PyTorch, Pandas, NumPy, FFmpeg, Antlr4, Git, Gradle

Practices: Unit and Integration Testing, Agile/Scrum

Projects

Palloc: Autonomous Vehicle Parking Allocation (*Bachelor Thesis*)

ILP-based system in C++ for optimal AV parking assignment. Achieved 725:1 parking-to-request capacity ratio across four Danish cities using Google CP-SAT solver.

QETRE: Quantitative Pattern Matching in Time Series (*Semester Project*)

Extended timed regular expressions with optimization operators in C++. Translated expressions to Extended Timed Automata networks for pattern matching in ECG and smart building data.

Table Preprocessing Language (*Semester Project*)

Python-like interpreted language in C++ using Antlr4 for parsing. Implemented comprehensive unit and integration testing.

Automatic Video Clip Editor (*Personal Project*)

CLI tool in C++ for automated Twitch clip processing and YouTube uploads via REST APIs using FFmpeg.

Flexibility Predictor for Heat Pumps (*Semester Project*)

Time series LSTM/GRU models for flexibility prediction. Built training and evaluation pipelines using PyTorch and Pandas.

Experience

Teaching Assistant, Aalborg University 2024 – 2025

Assisted exercise sessions and evaluated student assignments for Imperative Programming and Syntax & Semantics courses.

Kitchen Assistant, Legoland Billund 2023

Dishwasher, Årre Kro 2019 – 2020

Languages: Danish (native), English (fluent)