TOON KLING

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EDUCATION

TU Delft **MSc Computer Science** Exp. Graduation July 2026
Specialization in **Programming Languages** and **Distributed Systems**

TU Delft **BSc Computer Science and Engineering** January 2024
With a **Minor in Computational Science and Engineering**, TU Delft

EXPERIENCE

Software Developer at UTURN Java, PostgreSQL, Redis October 2022 - August 2024, *Rotterdam*

- Reduced main page load time from ∼6 seconds to ∼250 ms (∼ 24×), which stopped user complaints as the product scaled to > 1 million items
- Migrated a CI/CD pipeline from Jenkins to GitHub Actions, reducing deployment times (∼ 15 mins to < 1 min) and increasing stability. Added code coverage metrics, linting and static analysis with SonarQube
- Migrated a self-hosted bottle-necked PostgreSQL database to a hosting platform (Neon) with minimal downtime
- Built a search page using Meilisearch, synchronizing from the PostgreSQL database, returning results in < 5 ms
- Simplified and standardized API endpoints, adopting RESTful design and documentation using OpenAPI
- Upgraded from JDK 15 to 21 and from Spring Boot 2.6 to 3.2, which were the latest at the time

Software Project at MakeTek JavaScript, Node.js, React, Redis 2022

- Recommending related products when a product is out of stock, using content-based filtering
- Built a Redis database to store information on products, populated by making API requests
- Developed a RESTful API to handle requests for recommendations using Node.js

PROJECTS

Master's Thesis Verifying Memory Model Translations with Dependence Analysis Repository
with the **Programming Languages Research Group**

- Resolved limitations in dynamic translation of concurrent programs from x86 to ARM, which could previously not find and prevent all new executions allowed by the full formal memory model of ARM
- Implemented dependence analysis on LLVM IR source code, using a custom-written C++ LLVM pass
- Extended a Rust program to vary traces of program executions to find previously undiscoverable violations
- Co-authored a paper **submitted to POPL-2027**, which includes the results from my thesis

Distributed Data Systems Group Project for Web-scale Data Management Course GitHub

- Hardened and scaled a microservices-based architecture to handle increased load and provide ACID guarantees
- Used 2PC to guarantee global atomicity. Implemented a 2PL schedule to prevent transaction anomalies

Bachelor's Thesis Improving Automatic Test Case Generation by predicting optimal Fitness Functions TU Delft

- Predicted optimal Coverage Criteria to use in EvoSuite GitHub
- Retrieved, transformed and analyzed data using Pandas, collected metrics on source code
- Classification using a Random Forest Classifier, achieved an f1-score of 0.865

SKILLS

Languages	Java, Python, SQL, C++, Rust
Libraries	Spring Boot, Hibernate, FastAPI
Tools	PostgreSQL, LLVM, Redis, Git, Docker, Linux