

Willem Melis

Permanent Address

caelfstraat 8
8400 Oostende
+32 (0476) 491952

Other information

Github: github.com/zilleplus
Email: Willem.Melis@outlook.com

PROFESSIONAL EXPERIENCE

Marelec, Nieuwpoort

2020-current

R&D team waterjet cutting machine

Software Engineer - Optimization software - Computer vision

- Build an algorithm to cut convex shapes with shape and weight constraints out of a Chicken fillet. Used C++17/20, boost::geometry and a branch and bound algorithm to get customer approved solutions.
- Implemented an algorithm to detect the position/orientation of material. Using unsupervised learning(PCA) the algorithm learns the features of the material to identify the orientation of the material.
- Build an algorithm to cut out a non-convex shape with weight/width/length and height constraints. Using spline approximation/numerical integration and a tree-search algorithm a solution is found in over 90% of all the cases. I used C++20, boost::geometry, and fitpack(Fortran 77)
- Experimented with differential programming by expressing the problems as continuous functions. And then using Pytorch optimizers to solve them. Even-though they worked for simple problems, they were a bit too slow.

Verotech, Leuven

2018-2020

ArcelorMittal - System and Models

Software consultant - Operational research

- Replaced the in-house developed message broker with RabbitMQ. Eliminating the weekly maintenance on the in-house message broker.
- Refactored a data processing service using function programming techniques in C#. Resulting in a reduction of 20 000 lines of code, and reducing maintenance by a factor of 4.
- Developed a logging system such that the team could access logs within seconds instead of hours.
- Analyzed an old cutting heuristic that runs on OpenVMS/db2. Identified fundamental issues with the current approach. The resulting report started a project to revamp the service.
- Assisted in the maintenance of a simulated annealing schedule heuristic (C++17 visual studio) to optimally control automated cranes in the slab yard.

Proferro, Ieper

2015

Production - mechanical department

Project related to Master of engineering Technology

- Created C#.NET/MSSQL application that extracts data from plc's into a SQL database. And visualizes the parameters selected by in the application.

Artilium(Pareteum), Loppem

2013

System engineering

Internship

- Created C#.NET/MSSQL application to visualize performance parameters of the software platform. The data is collected from 4 different kinds of data sources. The data is normalized and displayed onto a GUI application. It allows Artilium to better estimate the remaining capacity of the platform.

Zapfi, Brugge

2013

System engineering

Summer job

- Create PHP/MYSQL webapplication to manage configuration of metropolitan wifi infrastructure.

EDUCATION

Master of engineering, Mathematical engineering

KuLeuven, Leuven

THESIS - <https://github.com/kul-forbes/nmpc-codegen.git>

2018

Master of engineering Technology, Electronics and ICT - option ICT

KuLeuven, Oostende

THESIS - Isolation of critical processes on embedded Linux systems

2015

TECHNICAL SKILLS

- C#.NET, C, C++17/20, MSSQL, Python
- git, Jenkins, Azure devops, visual studio, cmake, conan
- Tensorflow/scikit-learn/OpenCV

LANGUAGE SKILLS

- Dutch
- English

ADVANCED: native speaker
GOOD: written and spoken