Cornelis de Mooij

aerospace and software engineer

about

Delft, The Netherlands
info@cornelisdemooij.com
github.com/cornelisdemooij

languages

Fluent:
Dutch
English

Limited:
French
German
Latin
Ancient Greek

programming

C++
C#
CSS
HTML
Java
Javascript
Kotlin
Lisp
Lit-HTML
Matlab
Polymer 2
Python
Scala
SQL

biography

Most of my backend programming experience is with Java, Scala, C++, Matlab and .Net/C#. I also have experience with front-end development, including Polymer, lit-html and native webcomponents, as well as with various other languages, such as SQL, Python and Lisp. For version control and CI/CD, I have mainly used Github privately and Gitlab professionally, with some experience with TFS and Azure DevOps.

I am fluent in Dutch and English and have limited proficiency in French and German.

My ideal job would have a high degree of ownership, ideally in the form of a single team being responsible for an entire business domain, including operations, backend and front-end.

experience

2019-Now **ING (Amsterdam, NL)** Full time

As a full-time developer at ING, I have worked on various projects, across the entire stack, both individually as well as together with other developers: from managing servers and Oracle databases, to developing Java and Scala APIs, configuring and running build and deployment pipelines using Jenkins and TFS/Ansible, and developing the Polymer or lit-html front-ends that use these backend APIs. This development and operation work is done in close collaboration with business and UX colleagues in the same team, and with colleagues from adjacent teams to ensure the security and compliance of the software.

2018-2019 **ING/Young Colfield (Amsterdam, NL)** Full time traineeship

I was a full-time trainee at ING through Young Colfield, from August 1st 2018 until September 1st 2019. During a month of training at Young Colfield, I refreshed my Java, HTML, CSS and JavaScript knowledge, learned about SCRUM, Polymer and native webcomponents and completed my Java OCA certification. Together with three other trainees, I developed a budgeting app using Apache HTTP server, MySQL with MariaDB, Java with Spring, NodeJS, JavaScript, CSS and HTML.

At ING, I worked in the PIE squad, which is part of the 1-1 Analytics tribe, on the development, maintenance and operation of the InsightsAPI using Scala, Kafka, Cassandra, Jenkins & TFS/Ansible. Additionally, I took on the responsibility of handling most of the operational controls using OCD.

Together with another trainee, I took the initiative to teach a programming course for beginners at Young Colfield, to help business-oriented trainees learn how to understand and speak the same language as their IT colleagues. We are planning to teach this course again, to new trainees and/or ING employees.

10-11 2016 **Clarkson University (Potsdam, New York, USA)** Full time

Guest research: designed, built and carried out experiments at the Center

for Advanced Materials Processing (CAMP). I have collected measurements using fibre optic strain gauges and digital image correlation (DIC), for a structure that is representative of the intended aerospace applications of my PhD work (a small composite wind turbine blade). I carried out these experiments at Clarkson University, using an experimental test set-up that I designed in SolidWorks and built myself. See also PhD Aerospace Engineering, above.

2013-2014 **Holst Centre/TNO (Eindhoven, NL)** Full time internship

I also became interested in material science during my MSc, which led to my internship and thesis with the NovAM department (Novel Aerospace Materials). Both were carried out at Holst Centre/TNO. I developed simulations in Matlab for the photonic sintering of silver ink electronics printed on transparent foil. This was done in 4 parts: a 2D raytracing model to predict light intensity, a thermal model that incorporated evaporation, a 3D densification model of silver nanoparticles and a model for predicting the equivalent resistance of a network of silver particles. I worked with many experimental techniques to calibrate and validate the models, including: TGA, DSC, XRF, NMR, FTIR, XPS, (EDS/)SEM, UV/VIS and IR thermal imaging.

01-06 2013 **Kojac (Delft, NL)** Part time (16 hr/week)

To free up time for university work, I switched jobs to Kojac, a secondment agency. Through Kojac I worked for Stork and R+K Consulting Engineers, mainly working with Visual Basic for both. At R+K I also had to modify software written in .Net/C#.

2011-2013 **Decos Cartracker (Noordwijk, NL)** Part time (30 hr/week)

During my MSc, I worked 30 hours/week as a software engineer at Decos Cartracker, working with .Net/C#, Visual Basic and SQL to port VB code to .Net/C#, improve existing software, make new software to upload firmware, and mine and analyse data to inform the company strategy. I also developed a model for predicting the fuel consumption and exhaust gas production of cars based on the velocity and acceleration behaviour of drivers. I based this model on measurement data from the Oak Ridge National Laboratory. I also provided occasional tech support to customers.

01-03 2012 **Delft University of Technology (Delft, NL)** Part time (10 hr/week)

Teaching assistant for the course "Simulation, Verification & Validation". The work included answering students' questions about the assignments and grading their work.

01-03 2011 **Het Studiepunt (Sassenheim, NL)** Part time (8 hr/week)

Supervising groups of high school students while they made their homework and math tutoring of individual high school students.

06-08 2008 **Blackwave Inc. (Acton, Massachusetts, USA)** Full time internship

I developed a simple product comparison tool for web video servers using Excel. The user could enter the characteristics of the system they were intending to purchase and the tool would automatically calculate an estimate of the cost for different vendors, to compare them to Blackwave.

education

2014-2018 **PhD Aerospace Engineering** Delft University of Technology

I am currently writing my PhD thesis at the Structural Integrity & Composites

department. I am working on shape sensing using the inverse finite element method (iFEM). The goal is to develop a method that can determine an optimal estimate of the deformation of a structure, given a mesh of the structure, its boundary conditions and a limited amount of sensor data, which can consist of strain and/or displacement measurements, which I collected during experiments at Clarkson University, see also below. I have carried out the pre-processing of the measurement data using Matlab. I developed the iFEM algorithms and the corresponding FEM algorithms in C++ using Visual Studio. To extend the applicability of the algorithm to the large deflections that occur for aircraft wings and wind turbine blades, I am currently developing a geometrically nonlinear variant of the iFEM algorithm.

2011-2014 **MSc Aerospace Engineering** Delft University of Technology

My MSc program, Aerospace Structures & Computational Mechanics, included optimization, FEM, CAD, differential equations, aeroelasticity and material science. I took additional courses in computer science to gain more experience with software development methods, algorithms and formal logic. I did my thesis with a different department, as I became interested in material science: Novel Aerospace Materials (NovAM), see also Holst Centre, below.

2008-2011 **BSc Aerospace Engineering** Delft University of Technology

I worked mostly with Java and Matlab during my BSc. I minored in physics, where I learned about relativity, quantum mechanics, particle physics and electromagnetism. I also took additional programming courses, to gain more experience with various programming languages, including Matlab, Python, C++ and Java.

2002-2008 **TTO (Bilingual) Gymnasium** Rijnlands Lyceum (Oegstgeest, NL)

In high school, I picked the profile "nature and technology". My first real experience with programming involved Lisp. I used Lisp for my profile assignment at the end of high school. I designed and built a mechanical puzzle, similar to a Rubik's cube, and proved mathematically how many possible configurations existed and that they could all be reached. I then wrote a program in Lisp to verify this, which included developing an algorithm that could solve any configuration of the puzzle.