

NIELS BUGEL

Computing Science MSc Graduate

I am a full-stack software developer with a passion for high-performance computing, computer graphics, and visualization. At my university, I helped with streamlining and improving various aspects of the CS programme and worked in numerous different teams there. Most of all, I enjoy learning new things and seeing the teams I collaborate with succeed.

Groningen, Netherlands

www.nielsbugel.dev ◦ bugel.niels@gmail.com ◦ Phone number on request



LANGUAGES AND TECHNOLOGIES

- C++, C, Java, TypeScript, JavaScript, Python
- CUDA, OpenGL, Qt, React, Node.js, Flask, Docker, JUnit, CI/CD, Bash, Git
- English, Dutch

EDUCATION

Groningen, NL	University of Groningen	Sep 2020 – Jul 2023
	• MSc. in Computing Science, Data Science & Systems Complexity — cum laude (GPA: 9.0/10)	
Groningen, NL	University of Groningen	Sep 2017 – Jul 2020
	• BSc. in Computing Science — cum laude (GPA: 8.8/10)	

EMPLOYMENT

Teaching Assistant	University of Groningen	Feb 2019 - Jul 2023
• BSc courses: Object-Oriented Programming (x5; Coordinator), Advanced Object-Oriented Programming (x4; Coordinator), Signals and Systems (x2), Algorithms and Data Structures (x2), Advanced Algorithms and Data Structures (x2), Parallel Computing (x2), Computer Graphics, Operating Systems.		
• MSc courses: Advanced Computer Graphics, Advanced Parallel Programming, Image Processing (x2).		
• Student Mentor.		
Took initiative to design course material such as readers, assignments, frameworks, and tutorials. Coordinated courses of over 300 students and managed teams of up to 30 Teaching Assistants. Gave lectures, tutorials, presentations, and lab sessions for groups of up to 150 students.		
Proactively made efforts to improve courses resulting in several courses with previously low ratings receiving consistently high scores in the course evaluations.		

Numerus Fixus Coordinator CS	University of Groningen	Oct 2019 – Jul 2023
• Designed and wrote the selection procedure taken by over 400 students (yearly) for the CS Programme.		
• Took initiative to set up and organize on-site training sessions for prospective students.		
• Coordinated a team of Teaching Assistants in grading the selection tests and portfolios.		

Full Stack Developer	University of Groningen	Oct 2020 – Aug 2022
• Designed, built, and maintained MATIG: a web application that streamlines and automates the matching procedure for several studies at the Faculty of Science and Engineering, resulting in a significant reduction of staff workload.		
• Communicated with staff to establish and integrate their requirements into the MATIG system.		
• Built MATIG using React, Express.js, MongoDB, and Redis and deployed it using Docker and Kubernetes.		

PROJECTS

NITRO

[GitHub](#)

- Created a node editor that allows for building complex non-destructive image processing pipelines.
- Focused on making the project modular and extendable.
- The project is open-source and comes with documentation.
- Built using C++, Qt, OpenCV, and OpenGL.

CERN CMS Event Visualizer

[GitHub](#)

- Built a web application for the visualization of particle collision events.
- Created a back end in Flask that uses the CERN Open Data API to retrieve collision event information.
- Used the event data to visualize particle trajectories using React and Three.js.
- Still in development.

Distributed GPU Convolution

[GitHub](#)

- Created a massively parallel implementation of generalized convolution operators for large image data sets in distributed systems.
- Used CUDA for an efficient GPU implementation, pthreads for CPU-parallelism to hide latency, and MPI to effectively utilize multiple computing nodes.

Bug-EI

[GitHub](#)

- Custom Java implementation of JUnit to demonstrate the usage of custom annotations and Reflection for the course Advanced Object-Oriented Programming.
- Partially live-coded in front of an audience.
- Built using Java and Maven.

ADDITIONAL EXPERIENCE AND AWARDS

- Submitted a paper to the CAGD journal (currently under review).
- Best presentation award for the courses:
 - *Introduction to Data Science*
 - *Student Colloquium* (x2)
 - *Information Systems*
- Student member of the following interview committees:
 - *Teachers for the Computing Science Programme*
 - *Tenure Track Assistant Professor in Visual Computing*
 - *Tenure Track Assistant Professor in Embedded Systems*
- Democratically elected as "funniest teaching assistant" somehow.