

Niklas Rieken

Curriculum Vitae

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in niklas-rieken

I am a computer scientist (BSc, MSc) with a PhD in Economics specializing in algorithmic methods, auction theory, and mathematical optimization. Having acquired a strong mathematical background with hands-on experience in Python, C/C++ and Linux-based workflows, I now seek for software-oriented roles where analytical rigor and algorithmic thinking are central.

Core Skills

Programming	Python (advanced), Bash (proficient), PHP (proficient), C/C++ (working knowledge)
Tools	git (proficient), Gurobi (proficient), LaTeX (+TikZ) (advanced)
Systems	GNU/Linux (proficient), AWS (basics)
Web & Data	HTML (proficient), CSS (proficient), SQL (proficient)
Methods	Combinatorial Optimization , Graph Algorithms
Languages	German (native), English (proficient), Spanish (basics)

Currently expanding software engineering skills with a focus on code quality and system design.

Work Experience

2019–2025	Doctoral Researcher , <i>Chair of Management Science</i> , RWTH Aachen University Researcher in Combinatorial Optimization and Algorithmic Game Theory. Matchings, matroids, mechanism design, teaching courses in mathematical economics.
2017–2019	Research Assistant , <i>Chair of Operations Research</i> , RWTH Aachen University Developer for GCG (<i>generic column generation</i> , MIP solver). Performance tests, extracting statistics, and collecting information on vast instance sets.
2014–2019	Teaching Assistant , <i>Chair of Computer Science 7 / TCS</i> , RWTH Aachen University TA for undergraduate courses in theoretical computer science. Teaching exercise groups, grading assignments and exams.

Education

November 2025	Doctorate (PhD) , <i>Economics</i> , RWTH Aachen University Thesis: Matroid Optimization in Auction Theory Final Grade: summa cum laude (highest distinction)
May 2019	Master of Science , <i>Computer Science</i> , RWTH Aachen University Thesis: Network Pricing Games with Atomic Splittable Followers Final Grade: 1.4
March 2017	Bachelor of Science , <i>Computer Science</i> , RWTH Aachen University Thesis: Alphabets and Machines as Structures and Their Decision Problems Final Grade: 2.5

Projects & Honors

Podcast	Algo2Go , <i>topics in computer science and applied mathematics</i> , 2021 Co-hosted German podcast with Prof. Dr. Laura Vargas Koch and Dr. Björn Tauer to explain algorithms to a broad audience. Responsible for content planning, research, and production.
Teaching Award	Prize for outstanding teaching activities , 2024 Faculty 8 of Economics, RWTH Aachen University