

Niklas Rieken

Curriculum Vitae

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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

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| 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

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| 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

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| 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

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| 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 |