KNAPP

Software Engineer - Multi-Agent Path Finding & Fleet Optimization (m/f/d)

Fulltime | Dobl-Zwaring, Austria

We develop automated shuttle transport systems that move intelligently, safely, and efficiently through complex logistics environments. Our software coordinates entire fleets of mobile robots and ensures that transport orders are planned and executed optimally.

To strengthen our team, we are looking for someone with experience or a strong interest in Multi-Agent Path Finding, motion planning, and algorithmic optimization. Together, we are shaping the next generation of intelligent fleet management systems for intralogistics.

#yourmission

- You develop and optimize algorithms for Multi-Agent Path Finding and coordinate the collision-free movement of large fleets of mobile robots.
- You work on challenging planning problems such as conflict resolution, deadlock avoidance, dynamic replanning, reservation strategies, and the optimization of routes and throughput.
- You transform algorithmic concepts and research results into robust, maintainable, and high-performance product software.
- You analyze different planning approaches and compare them using realistic scenarios, simulations, and measurable quality criteria.
- You work at the intersection of path planning, transport planning, fleet control, and the integration of external systems such as conveyor technology, workstations, and lifts.
- As part of a small, focused team, you contribute your own ideas, develop prototypes, and actively shape the technical evolution of our fleet management system.
- Our software stack is primarily based on modern C++. In addition, we use Python for simulations, prototyping, analysis, and automated testing.
- Our technologies include C++20, Python, TypeScript, Angular, Protobuf, MQTT, REST, SQL, GitLab, Docker, and Linux.
- We rely on Test-Driven Development, Continuous Integration, automated testing, and the continuous improvement of our software and development processes.

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powered by people.

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KNAPP

#youareknapp

- You are passionate about solving challenging algorithmic problems and want to tackle complex motion planning and scheduling tasks through high-quality software.
- You have experience or a strong interest in Multi-Agent Path Finding, path planning, graph algorithms, operations research, combinatorial optimization, or related fields.
- Ideally, you are already familiar with concepts and techniques such as A*, Conflict-Based Search, Prioritized Planning, Cooperative Path Finding, Constraint Programming, or heuristic optimization methods.
- You have a solid understanding of graphs, search algorithms, algorithmic complexity, and suitable data structures.
- You have practical software development experience in C++ or a comparable object-oriented language such as Java. Linux is a familiar environment for you.
- You can not only prototype algorithmic ideas but also evaluate them with regard to runtime performance, scalability, robustness, and maintainability.
- You enjoy systematically analyzing and improving solutions using simulations, benchmarks, and automated tests.
- You thrive in small, focused teams. Ideally, you already have experience with Git, GitLab, Continuous Integration, and modern development processes.
- TDD, refactoring, and automated quality assurance are essential parts of professional software development for you.
- You have a strong sense of software design and can confidently discuss technical decisions, algorithmic trade-offs, and development approaches.

#weareknapp

We are an innovative company specializing in the development of automated shuttle transport systems in the field of robotics. Our vision is to help shape the future of logistics while creating sustainable and efficient transportation solutions.

We offer professional and personal development programs, as well as the opportunity to work in a motivated team where taking ownership and turning ideas into reality are highly valued. You will benefit from flexible working hours, home-office options, an on-site company restaurant, and our year-round KNAPP Vital Program featuring a wide range of health and wellness activities.

For this position, the minimum salary is EUR 3,415.01 gross per month (according to the collective agreement for the metal industry, based on 38.5 working hours per week). The actual salary will be determined individually, and we naturally offer market-competitive compensation based on your qualifications and previous experience.

We look forward to getting to know you!