

**Join Mosek ApS** — a global leader in linear, mixed-integer and conic optimization software.

Mosek develops and sells software for solving large-scale linear, mixed-integer and conic optimization problems. This requires implementing optimization algorithms such as interior-point methods. The key to good performance of interior-point methods is an efficient implementation of algorithms for solving large-scale sparse linear equation systems. Therefore, we are seeking a developer with interest and experience in developing software for large-scale sparse linear algebra problems.

The candidate's primary task will be to improve the efficiency of the parallel sparse Cholesky computation, which plays a crucial role in MOSEK's performance. In particular, the code should be extended to exploit GPU architectures. Depending on the candidate's interests and qualifications, subsequent tasks could involve sparse matrix reordering, implementing iterative methods for solving sparse linear systems, or implementing first-order methods. These tasks will allow the candidate to study the latest state-of-the-art methods and hardware to help us to produce one of the best commercial optimization software packages in its class.

### **What You'll Do**

- Work on improving the linear and conic optimizers in MOSEK.
- Design, develop, implement, and advance mathematical optimization algorithms for sparse linear algebra to solve linear programs using interior-point and first-order methods.
- Leverage your expertise in working with e.g., oneAPI TBB or OpenMP to implement parallel/multi-threaded programs
- Efficiently implement iterative algorithms for (large) sparse linear systems on CPU and GPU.
- Apply your software engineering expertise in C/C++ to deliver robust and reliable code, comprehensive test cases, and thorough documentation.
- Evaluate and enhance the performance and numerical robustness of MOSEK.
- Collaborate with an international team while structuring your work self-sufficiently.

### **What You Bring**

- Ph.D. or equivalent in Operations Research, Computer Science, or a related discipline.
- Practical experience in developing and maintaining software implemented in C or C++. For instance, you may have contributed to commercial or open-source solvers, such as SCIP, HiGHS, PIPS-IPM++.
- Excellent programming skills in C or C++.
- Deep technical proficiency with sparse numerical linear algebra is a must-have.
- Familiarity with the usage of BLAS and CUDA libraries for solving linear algebra problems.
- A collaborative spirit and outstanding self-management skills.
- Proficiency in both written and spoken English.

## Why Mosek?

- We offer flat hierarchies, outstanding work-life balance, and the freedom to innovate.
- We offer a job where you can focus on your passion for developing optimization software.
- Make a tangible impact in the optimization space.
- We encourage participation in relevant scientific conferences.
- You can work remotely or at our office in Copenhagen.
- Mosek ApS is committed to ensuring equal treatment and non-discrimination in the workplace.
- We welcome applications from all qualified individuals regardless of religion or belief, disability, age, gender or sexual orientation.

If you want to apply for the job, then send an email to [job@mosek.com](mailto:job@mosek.com). If you wish, we will reply with a secure method for transferring your application to us.

If you have a LinkedIn profile, then you are welcome to include a link to it in your initial email.

Our privacy policy can be found at <https://www.mosek.com/privacy/>