



The usage of **smart network cards** and **smart network switches** is a recent trend used in the IT industry. Network components are getting programmable and they can take over compute and control tasks. The German BMBF funded project ScalNEXT (“Optimierung des Datenmanagements und des Kontrollflusses von Rechenknoten für Supercomputing“) will study the opportunities and benefits of smart network devices for HPC. As part of this research, LRZ is participating in development of interfaces and fitting extensions of parallel programming models (MPI, Task-based runtimes), and it will focus on the evaluation of proposed concepts, both using existing HPC hardware as well as modelling benefits for larger node counts. For this, LRZ is looking for a

Scientific Research Assistant (f/m/d)

You are looking for doing research at one of the largest German Supercomputing Centers? Join us!

Your Role and Responsibilities:

- Work with smart NICs (two types: Nvidia BlueField DPUs with Infiniband and FPGA-based with 100Gb/s Ethernet) and smart Switches (BareFoot),
- Define interfaces and do prototype extensions for communication runtimes (MPI, Task-based models) in tight collaboration with project partners,
- Select and work with simulators to get projections of developed ideas for large-scale systems, calibrating model parameters from analyzing existing hardware and example applications,
- Disseminate your findings in peer-reviewed publications and present them at national and international conferences.
- certified, transparent processes

The ScalNEXT project is a collaboration of LRZ with TUM (Technical University of Munich), JGU (Johannes Gutenberg-Universität) Mainz, KIT (Karlsruhe Institute of Technology), RWTH Aachen, and APS Networks.

Basic Qualifications:

- Master or PhD in Computer Science or similar field
- Knowledge in Concepts and Usage of Parallel Programming Models (MPI, OpenMP) with C or C++
- Good understanding of hardware components used in HPC (multicore CPUs, GPUs, networks used in HPC)
- Interest in working on low-level software layers interacting with HPC hardware
- Interest in experimenting with new ideas and work with other people to come up with novel and unconventional solutions
- Ability to share results clearly in publications and engagement in enlarging your network in the HPC community at conferences
- Interest in supporting the “Future Computing” research team at LRZ working on the evaluation of new architectures
- You like to share experiences and put procedures to the test in order to improve them with the team.

Preferred Qualifications:

- Experience in FPGA programming
- Published peer-reviewed scientific papers in HPC
- Interest in advising student works
- Experience with performance analysis tools and typical optimization strategies in HPC codes

Area	Research
Working time	full time (40,1 hrs) / part-time possible flexible working model with electronic time recording
Term of the contract	until 30.09.2025, a further employment is intended
Remuneration	up to E 13, see Entgelttabelle TV-L
Annual leave / compensatory time off	30 days (24.12. + 31.12. additionally day off) Overtime is compensated by additional time off
Further trainings	Individual support for in-service training and further education
Benefits	e.g. home office option, public transport discount (job ticket), bus and subway (U6) on the doorstep, free parking, pension plan of the Versorgungsanstalt des Bundes und der Länder (VBL), state-of-the-art work equipment

What can you find with us?

Are you looking for a multifaceted and intellectually stimulating position in a dynamic, cooperative and innovative work environment? Then LRZ is the place to be for you! Here at LRZ a collegial, appreciative work environment meets an international crowd of experts who work together to advance IT services for ground-breaking research. We offer flexible work schemes for an optimal work-life balance. Our staff values their creative leeway. As an institute of the Bavarian Academy of Sciences and Humanities we offer all the benefits of public service. And of course, no wishes remain unfulfilled at the LRZ in terms of technical equipment. We share experiences, constantly review and improve our processes, and are proud that our service-quality and data-security are regularly certified and rated highly. We actively promote diversity and welcome applications from talented individuals, regardless of cultural background, nationality, ethnicity, gender and sexual identity, physical abilities, religion and age. We give priority to applications from people with disabilities who are equally qualified (SGB IX).



The LRZ in a nutshell:

Since 1962, Bavarian universities and research institutions have relied on the IT expertise of the Leibniz Supercomputing Centre of the Bavarian Academy of Sciences and Humanities. When it comes to the digital transformation of science, we are traditionally ahead of the game.

We are looking forward to receiving your complete application documents (including cover letter, CV and certificates) in a single PDF file via e-mail (other file types are not accepted) by latest **13.02.2023**:

E-Mail: jobs@lrz.de

Subject: **ScalNEXT (2022/70)**

Are you unsure whether the job suits you or you suit us? Or do you still have questions about this position? Our colleagues will be happy to answer all your questions at the above e-mail address.

This job does not fit? Then take a look at <https://www.lrz.de/wir/stellen/> or send us an unsolicited application!

[Here](#) you will find information about the collection of personal data during the application process.



 charta der vielfalt

UNTERZEICHNET

 Familienpakt
Bayern