# Technical Training (TT) scholarship in High-Performance Computing
## FAPESP Scholarships
## (University of São Paulo, Brazil)

We are currently seeking three Technical Training (TT) researchers to join our team and contribute to the thematic project "Trends in High-Performance Computing – From Resource Management to New Computer Architectures." The candidates should have a Computer Science background and knowledge in High-Performance Computing applications. As a part of our team, the Technical Training researchers (two at level 4A and one at level 5) will focus on the project "Improving parallel applications in heterogeneous environments." The positions are open to candidates from all nationalities.

**Description**

The selected TT researchers will help to develop related tools and experiments on the FPGA boards, acquired for the project. We are also in the process of acquiring a new parallel machine (150 K USD) for experiments. The TT researchers will also assist the  adaptation of existing parallel applications to the project's context, which will serve as both examples of applications of interest and test cases while also facilitating the adoption of the project's results by groups interested in these applications.

The team will consist of two Level IV-A Technical Training scholarship holders and one Level V Technical Training scholarship holder. The research and activities carried out by the fellows ( Levels IV-A and V) who make up the team for this project will contribute to the work of other researchers, such as undergraduate and graduate students and professors from the Computer Science department at IME-USP.

The development work will follow the practices of agile methodologies. Access to the Multi-User Equipments (EMUs) will allow quality and performance testing to be carried out regularly. Integrating development with the work of researchers will allow the publication of scientific papers describing the results obtained.

The expected results schedule includes a literature review in the HPC area, analysis and testing of the applications developed, writing of partial and final reports, participation in

conferences, and publication of academic articles to disseminate the partial and final results. The expected duration of the scholarship is 12 months, renewable for additional 12 months.

With this, we expect to make contributions to the parallelization of several problems with high computational demands.

## Requirements

### Technical Training IV-A (TT 4A) – 2 positions
Scholarship Amount: R$ 7,080.00 monthly

a. for candidates who are graduates in Computer Science or related fields;
b. with a minimum of four years of research experience or professional experience after graduation in a field related to the proposed Activity Plan; and
c. with a commitment of 16 to 40 hours per week (the scholarship amount paid will be proportional to the number of weekly hours) to support the research project activities.

The TT-IV-A fellows will work on the code of existing applications to adapt them to the tools and techniques developed by the project researchers, testing them, and evaluating the results obtained together with the researchers on the FPGA machine.

### Technical Training V (TT-5) – 1 position
Scholarship Amount: R$ 9,320.00 monthly

a. for candidates who are graduates in Computer Science and related fields;
b. with a minimum of five years of research experience or professional experience after graduation, or with a doctorate, both in a field related to the proposed Activity Plan; and
c. with a commitment of 16 to 40 hours per week (the scholarship amount paid will be proportional to the number of weekly hours) to support the research project activities.

The TT-V fellow will guide and coordinate the work of the two TT-IV-A fellows, outlining methods and policies, as well as interacting with the group's researchers to define priorities and strategies to ensure the smooth running of the work. In addition, he/she should also work on the development itself.

Since much of the work to be developed consists of team software development (3 scholarship holders), TT5 must have experience and technical competence to manage the progress of the work and solve advanced technical issues.

**What we offer**

We offer a competitive FAPESP fellowship (R$ 9,320.00 for TT5 and R$ 7,080.00 for TT4A). Successful candidates will be supervised by Prof. Dr. Alfredo Goldman.

The Technical Training researchers will be based at the Department of Computer Science at the University of São Paulo, located in São Paulo city. This dynamic and collaborative environment offers numerous opportunities for professional development and research collaboration. The position is available immediately following the completion of the selection process.

**How to Apply**

To apply for the position, send the following documents in PDF format by email to gold@ime.usp.br with a copy to camila.ap@ime.usp.br:

• A cover letter explaining why you are a good fit for the project.

• Curricular Summary in the format requested by FAPESP.
Instructions for the elaboration of a Curricular Summary can be found here:
https://fapesp.br/6351/instructions-for-the-elaboration-of-a-curricular-summary.

**Application Deadline**

The application deadline is 10th March 2025 (Monday). The selection is expected to be finished around a month after the application deadline.