



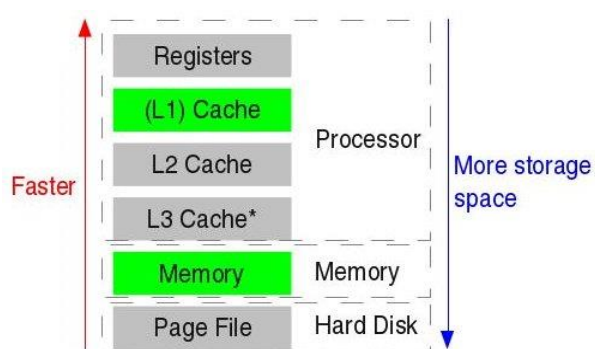
## Module PMRF-ISSS082/2023 Essentials of Scalable Systems for Scientists

### Name of the PMRF student

Agrim Sharma

### Required background of the students taught

- Basic programming
- Basic familiarity with microprocessors (as taught in beginner electronics courses, for instance)



### Details of the content of the module

- Week 1: Basics of computer organization, Life cycle of programs
- Week 2: Machine level representation of programs and data
- Week 3: Memory Hierarchy, Cache: Design, Lookup, and Performance
- Week 4: Pipelining, vectorization, and other optimizations
- Week 5: Essentials of Software Organization and Operating system
- Week 6: Introduction to Parallel Computing Architectures
- Week 7: Parallelization Principles
- Week 8: Parallel Programming Models, Shared Memory Parallelism with OpenMP
- Week 9: Distributed memory parallelism with MPI
- Week 10: GPU programming with CUDA

### Schedule of the module

#### Class timings:

Fridays and Saturdays every week (6:00-7:30 PM)

Start date: 12 January 2023 (Friday)

End date: 16 March 2023 (Saturday)

Meeting link : Will be shared later

[Link](#)

Contact email ID: [issforum@gmail.com](mailto:issforum@gmail.com)

Registration link:

<https://forms.gle/MZoUA8E99XEX2Y1JA>