IEEE CLUSTER 2025

Edinburgh, Scotland • 2–5 September

IEEE Cluster 2025 Call for Papers

IEEE Cluster 2025 is the 27th edition of the IEEE Cluster conference series. It is being held in cooperation with SIGHPC.

Computing clusters remain the primary system architecture for building many of today's rapidly evolving computing infrastructures including high-performance computing, cloud computing, machine learning training and inference systems, and big data, and are used to solve some of the most complex problems. The challenges posed making them scalable, efficient, productive, and increasingly effective require community efforts in the areas of cluster system design, advancing the capabilities of the software stack, system management and monitoring, and the design of algorithms, methods, and applications to leverage the overall infrastructure

For IEEE Cluster 2025, which will be held September 2-5, 2025 in Edinburgh, United Kingdom, we again solicit high-quality original work that advances the state-of-the-art in clusters and closely related fields.

All papers will be rigorously peer-reviewed for their originality, technical depth and correctness, potential impact, relevance to the conference, and quality of presentation. Generally research papers must clearly demonstrate novel research contributions, however papers reporting experiences are also welcome, but they must clearly describe the lessons learned and the resulting impact, along with the utility of the approach in comparison to previous work.

Authors must indicate the primary topic area of their submissions from the four topic areas provided below. In addition, they may optionally rank their paper relative to the overall set of topics. Transversal and emerging topics such as AI for HPC, HPC for AI, quantum computing, accelerators, and many others, are welcome within the respective areas even if they are not mentioned explicitly. Papers are limited to 10 pages, although references do not need to fit within this page limit.

IEEE Cluster 2025 follows a **dual-anonymous review process**. For an explanation and description of this review process, please refer to the following link: dual-anonymous policy

Guidelines for Artificial Intelligence (AI)-Generated Text

The use of content generated by artificial intelligence (AI) in a paper (including but not limited to text, figures, images, and code) shall be disclosed in the acknowledgments section of any

paper submitted to an IEEE publication. The AI system used shall be identified, and specific sections of the paper that use AI-generated content shall be identified and accompanied by a brief explanation regarding the level at which the AI system was used to generate the content.

The use of AI systems for editing and grammar enhancement is common practice and, as such, is generally outside the intent of the above policy. In this case, disclosure as noted above is recommended.

Please also refer IEEE Submission Policies

Area 1: Application, Algorithms, and Libraries

- HPC and Big Data application studies on large-scale clusters
- Applications at the boundary of HPC and Big Data
- New applications for converged HPC/Big Data clusters
- Application-level performance and energy modeling and measurement
- Novel algorithms on clusters
- Hybrid programming techniques in applications and libraries (e.g., MPI+X)
- Cluster benchmarks
- Application-level libraries on clusters
- Effective use of clusters in novel applications
- Performance evaluation tools

Area 2: Architecture, Network/Communications, and Management

- Node and system architecture for HPC and Big Data clusters
- Architecture for converged HPC/Big Data clusters
- Energy-efficient cluster architectures
- Packaging, power and cooling
- Accelerators, reconfigurable and domain-specific hardware
- Heterogeneous clusters
- Interconnect/memory architectures
- Single system/distributed image clusters
- Administration, monitoring and maintenance tools

Area 3: Programming and System Software

- Cluster system software/operating systems
- Programming models for converged HPC/Big Data/Machine Learning systems
- System software supporting the convergence of HPC, Big Data, and Machine Learning processing
- Cloud-enabling cluster technologies and virtualization
- Energy-efficient middleware
- Cluster system-level protocols and APIs
- Cluster security
- Management of local, center-wide and disaggregate resources and job
- Programming and software development environments on clusters

- Fault tolerance and high-availability
- Administration, monitoring and maintenance tools

Area 4: Data, Storage, and Visualization

- Cluster architectures for Big Data storage and processing
- Middleware for Big Data management
- Cluster-based cloud architectures for Big Data
- Storage systems supporting the convergence of HPC and Big Data processing
- File systems and I/O libraries
- Support and integration of non-volatile memory
- Visualization clusters and tiled displays
- Big Data/Large scale data visualization tools
- Big Data application studies on cluster architectures

Paper Submission

- Submissions must be in PDF format and must conform to the following Xplore layout, page limit, and font size, that is; single-spaced, 2-column numbered pages in IEEE format (8.5x11-inch paper, margins in inches – top: 0.75, bottom: 1.0, sides:0.625, and between columns:0.25, main text: 10pt).
- Submissions are required to be no more than 10 pages (excluding references).
- Papers will be reviewed dual-anonymous. Author names and affiliations should NOT be included in the submitted paper. For additional guidelines read the dual-anonymous review policy.
- LaTeX and Word Templates are available here

Important Dates

- Submission site open: February 3, 2025
- Full Papers due: April 5, 2025
- Paper Acceptance Notification: June 5, 2025
- Camera-ready deadline: August 6, 2025
- Conference: September 2-5, 2025
- All deadlines are Anywhere on Earth (AoE)