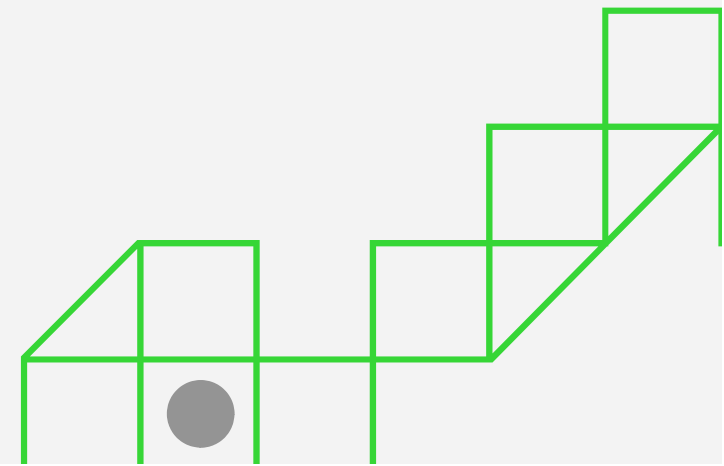
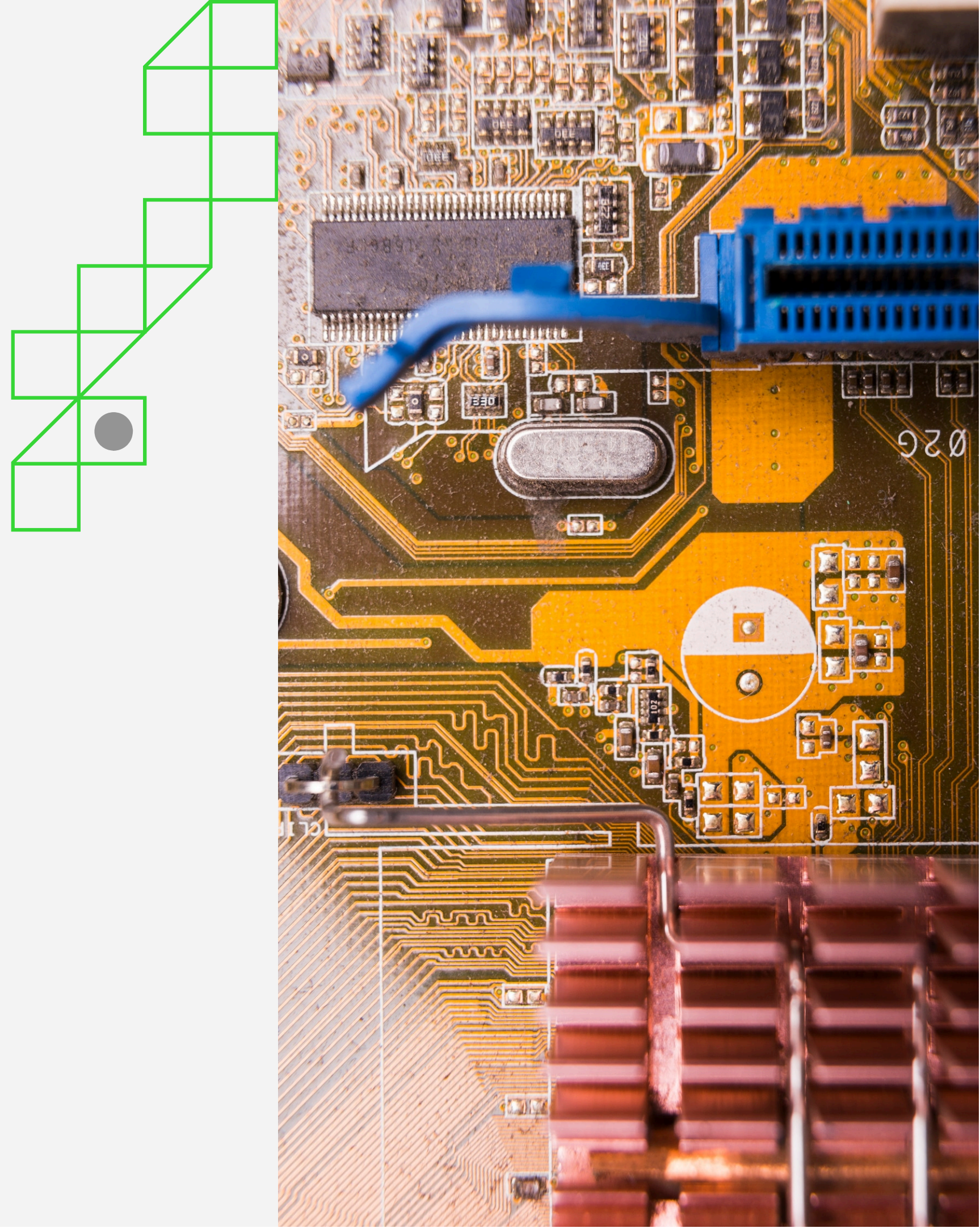
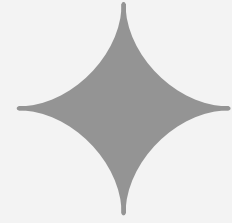


Optimizing Real-Time Systems Using Enhanced CPU Scheduling



Introduction

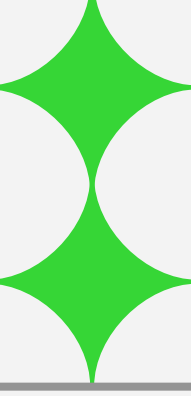
Real-time systems require **enhanced CPU scheduling** to meet strict timing requirements. This presentation explores techniques for optimizing real-time systems through advanced scheduling algorithms and resource allocation strategies.

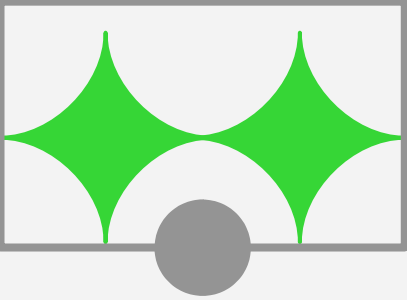




Understanding Real-Time Systems

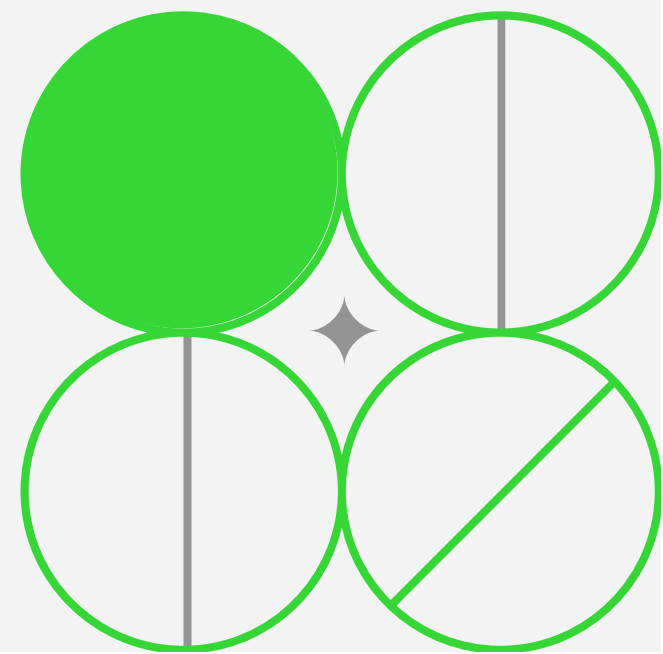
Real-time systems are designed to process data and events in **real time**. They are used in critical applications such as industrial control systems and medical devices. **Deterministic** task scheduling is crucial for meeting timing constraints and ensuring system reliability.





Challenges in CPU Scheduling

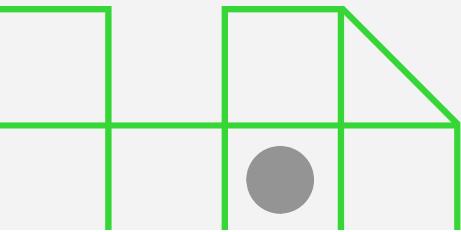
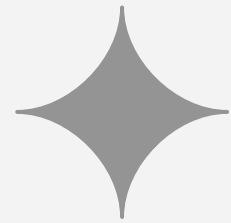
Traditional CPU scheduling algorithms may not be suitable for real-time systems due to their focus on **throughput** and **response time**. Real-time systems require **predictability** and **low latency** to ensure timely processing of critical tasks.

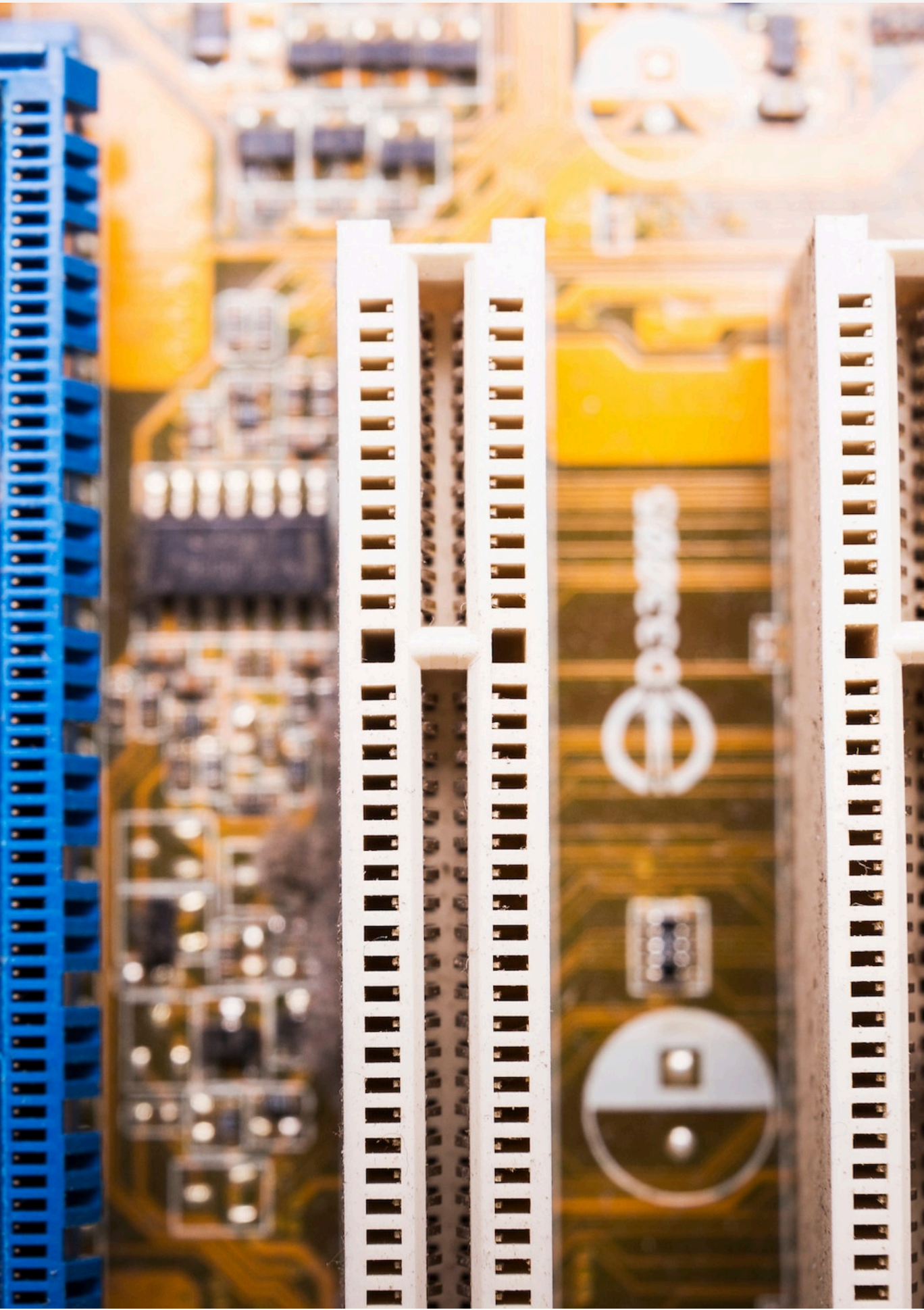
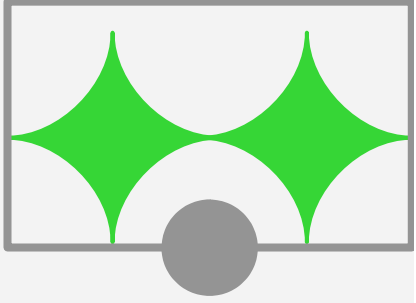




Enhanced CPU Scheduling Techniques

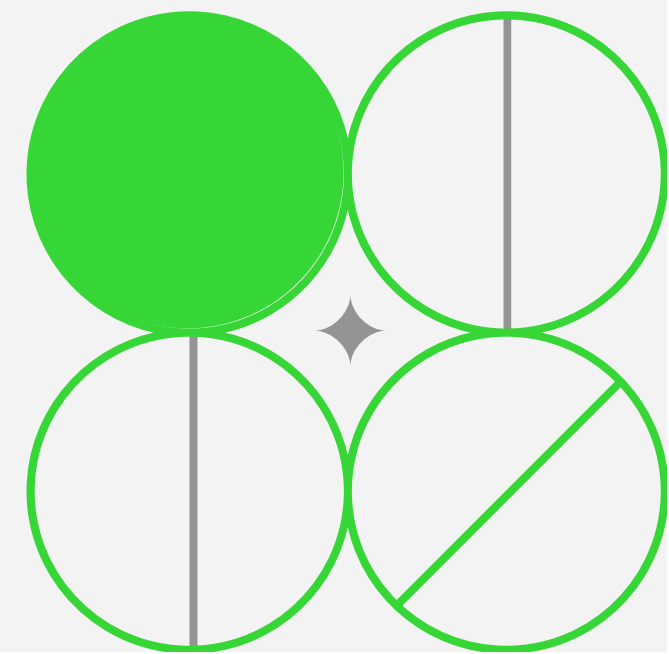
Advanced techniques such as **priority-based scheduling**, **rate monotonic scheduling**, and **deadline-driven scheduling** can improve the performance of real-time systems. These techniques prioritize tasks based on their criticality and timing requirements.





Resource Allocation Strategies

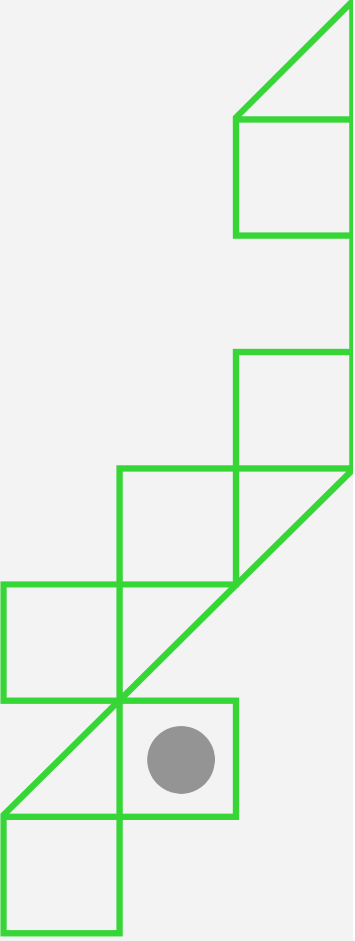

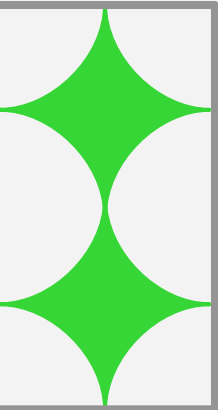

Optimal resource allocation is essential for real-time systems. Techniques such as **resource reservation** and **dynamic resource allocation** can help ensure that critical tasks receive the necessary CPU time and other resources.

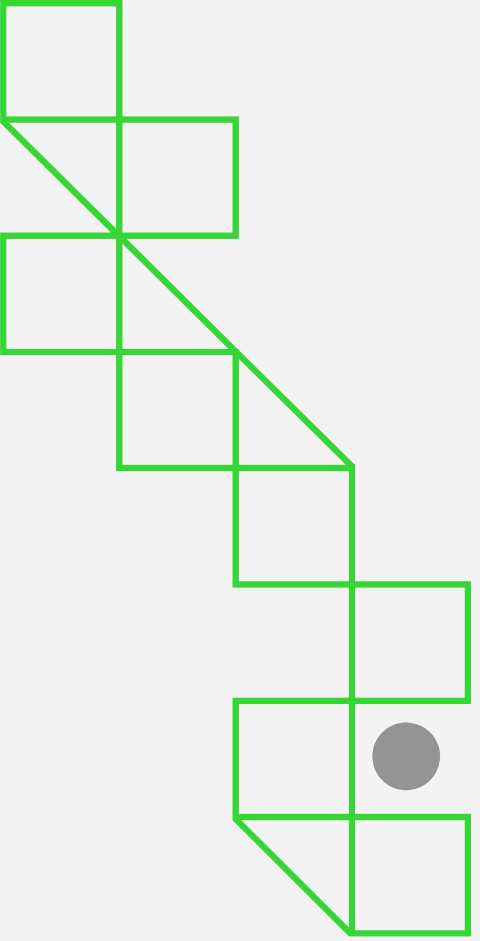




CONCLUSION

Enhanced CPU scheduling plays a crucial role in optimizing real-time systems. By implementing advanced scheduling algorithms and resource allocation strategies, real-time systems can achieve **predictable performance** and **timely execution** of critical tasks, ensuring their reliability and effectiveness.





Thanks!

