



# Hard Disk Drive: Mechatronics and Control (Automation and Control Engineering)

By Al Mamun, Abdullah

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## Hard Disk Drive: Mechatronics and Control (Automation and Control Engineering) By Al Mamun, Abdullah

The hard disk drive is one of the finest examples of the precision control of mechatronics, with tolerances less than one micrometer achieved while operating at high speed. Increasing demand for higher data density as well as disturbance-prone operating environments continue to test designers' mettle. Explore the challenges presented by modern hard disk drives and learn how to overcome them with *Hard Disk Drive: Mechatronics and Control*.

Beginning with an overview of hard disk drive history, components, operating principles, and industry trends, the authors thoroughly examine the design and manufacturing challenges. They start with the head positioning servomechanism followed by the design of the actuator servo controller, the critical aspects of spindle motor control, and finally, the servo track writer, a critical technology in hard disk drive manufacturing. By comparing various design approaches for both single- and dual-stage servomechanisms, the book shows the relative pros and cons of each approach. Numerous examples and figures clarify and illustrate the discussion.

Exploring practical issues such as models for plants, noise reduction, disturbances, and common problems with spindle motors, *Hard Disk Drive: Mechatronics and Control* avoids heavy theory in favor of providing hands-on insight into real issues facing designers every day.

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**Bibliography**

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