

Signal processing is a ubiquitous part of modern technology. Its mathematical basis and many areas of application are the subject of this book, based on a series of graduate-level lectures held at the Mathematical Sciences Research Institute. Emphasis is on current challenges, new techniques adapted to new technologies, and certain recent advances in algorithms and theory. The book covers two main areas: computational harmonic analysis, envisioned as a technology for efficiently analyzing real data using inherent symmetries; and the challenges inherent in the acquisition, processing and analysis of images and sensing data in general — ranging from sonar on a submarine to a neuroscientist's fMRI study.



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**Mathematical Sciences Research Institute  
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**Modern Signal Processing**

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