Project Overview

• (Broadly) Algorithms & Information Theory
• (Focus) Algorithms for error-correction
  – Using list-decoding
  – To correct errors in communication media
    • More errors
    • More efficiently
    • For more codes
Progress Through December 2001

- **Efficient algorithms for list-decoding**
  - Reed Solomon case
  - Expander based
- **New applications of list-decoding**
  - Guessing secrets
- **Analysis of Grammar-based compression**
Research Plan for the Next Six Months

• **More efficient algorithms:**
  – Approach capacity for low-rate codes in nearly linear time

• **New applications of list-decoding**
  – Watermarking? Frameproofing?

• **Tree codes:** For interactive computation.

• **List-decoding vs. Packing density.**