Algorithms Research Group
Potential Future Topics

Graph algorithms
- Recursive graphs
- Perfect graphs
- Intersection graphs
- Robertson and Seymour’s sequence of papers

Proofs of long-standing conjectures
- 4-color theorem
- Fermat’s last theorem
- Recognition of primes
- Recognition of perfect graphs
- Wagner’s conjecture

Alternative models
- Randomized algorithms
- Nondeterministic algorithms
- Parallel algorithms
- Approximation algorithms
- Online algorithms

Complexity theory
- NP-completeness
- Which NP-complete problems are easiest?
- Classes inside P
- Classes above NP

Discrete math
- Solving recurrences
- Generating functions
- Combinatorics
- Number theory
- Set theory, formal logic

Optimization
- Linear programming
- Integer programming
- Markov chains

Miscellaneous
- Algorithm animation
- Graph drawing
- VLSI design
- Computational geometry
- Gödel's incompleteness theorem
- Breaking hash functions (MD5 and SHA-1)
- Other topics of interest to the algorithms or theoretical CS communities