Outline of Optimization

More Advanced Code Generation
- Instruction Selection by Tree Rewriting
  - Equivalence to LR Parsing
- Temporary Spilling

High Level Code Optimizations
- Constant Folding
- Strength Reduction
- Duplicate Load Elimination
  - Global Values? (static/volatile)
  - Local Values?
  - Constant Values?
  - Pointer Aliasing
  - Restricted vs unrestricted pointers
  - http://www.lysator.liu.se/c/restrict.html
- Loop Unrolling
- Code Hoisting
- Function Inlining
- Dead Code Elimination
  - Dead Expression
  - Unreachable Blocks
  - Unreachable Functions

Low Level Optimizations
- Peephole Optimizations
- Register Allocation
- Instruction Scheduling
- Vectorization

Optimization Considerations
- Correctness First!
- Are Side Effects Important?
- Time vs Space
- Run Time vs Compile Time
- Top-Down vs Bottom Up