

Compiler Optimizations and Program Analysis

Unnikrishnan C

Data Flow Analysis

Sections from Dragon Book

- 1) 9.2.4 - Reaching Definitions
- 2) 9.2.5 - Live-Variable Analysis
- 3) 9.2.6 - Available expressions

Optimizations for Parallelism and Locality

- 1) 11.2- Matrix Multiply an In-Depth Example**
- 2) 11.4- Affine array index**
- 3) 11.5 - Data Reuse**
- 4) 11.7.8 - Source Code Transforms**
- 5) 11.5.1, 11.5.2 - Software Pipelining**

Code Generation

Sections

8.1 - Issues in Design of Code Generator

8.2 - The Target Language.

8.4 - Basic Blocks and Flow Graphs

8.5 - Optimization of Basic Blocks

8.6 - A simple Code generator

8.8 - Register Allocation and Assignment

8.9 - Instruction Selection by Tree Rewriting

Other Topics

Call String Interprocedural Analysis

Symbolic Execution

Local Value numbering.

Local optimizations (e.g dead code eliminations)