## Papers on Compiler Optimizations: Analysis and Transformations (1952-1994)

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30 September 2025

| Title  | Venue<br>Type | Venue<br>Name           | Туре | Year | Sources             |  |  |  |  |
|--|---------------|-------------------------|------|------|---------------------|--|--|--|--|
| The problem of simplifying truth functions [9]   | T&F           | AMM                     | J    | 1952 | О                   |  |  |  |  |
| Minimization of Boolean functions [10]   | Bell<br>Labs  | Bell System<br>Tech. J. | J    | 1956 | O                   |  |  |  |  |
| An algorithm for translating Boolean expressions [11]  | ACM           | JACM                    | J    | 1962 | S                   |  |  |  |  |
| High speed compilation of efficient object code [12]   | ACM           | CACM                    | J    | 1965 | D                   |  |  |  |  |
| Peephole optimization [13]   | ACM           | CACM                    | J    | 1965 | E                   |  |  |  |  |
| Program optimization [14]  | -             | PP                      | С    | 1966 | A, D, E, M,<br>O, S |  |  |  |  |
| Index Register Allocation [15]   | ACM           | JACM                    | J    | 1966 | E                   |  |  |  |  |
| Analysis of Programs for Parallel Processing [16]  | IEEE          | TC (TEC)                | J    | 1966 | O                   |  |  |  |  |
| Object code optimization [17]  | ACM           | CACM                    | J    | 1969 | A, D, E             |  |  |  |  |
| Local optimizations [18]   | ACM           | PLDI (SCO)              | С    | 1970 | E                   |  |  |  |  |
| Detection and parallel execution of independent instructions [19]  | IEEE          | TCO                     | J    | 1970 | S                   |  |  |  |  |
| Global common subexpression elimination [20]   | ACM           | PLDI (SCO)              | С    | 1970 | D, E, M             |  |  |  |  |
| The Generation of Optimal Code for Arithmetic Expressions [21]   | ACM           | JACM                    | J    | 1970 | D, E, M             |  |  |  |  |
| Control flow analysis [22]   | ACM           | PLDI (SCO)              | С    | 1970 | D, E                |  |  |  |  |
| A Basis for Program Optimization [23]  | IFIP          | NH                      | С    | 1971 | A, D, E, M,<br>O, S |  |  |  |  |
| A catalogue of optimizing transformations [24]   | -             | PH                      | С    | 1972 | A, D, E, M,<br>O, S |  |  |  |  |
| Flow graph reducibility [25]   | ACM           | STOC                    | С    | 1972 | D                   |  |  |  |  |
| Use-definition chains with applications [26]   | Elsevier      | COLA<br>(COMLAN)        | С    | 1972 | E                   |  |  |  |  |
| A global flow analysis algorithm [27]  | T&F           | JCM                     | J    | 1972 | E                   |  |  |  |  |
| Safety of code motion [28]   | T&F           | JCM                     | J    | 1972 | O                   |  |  |  |  |
| On the Number of Operations Simultaneously Executable in<br>Fortran-Like Programs and Their Resulting Speedup [29] | IEEE          | TCO                     | J    | 1972 | D, O                |  |  |  |  |
| Testing flow graph reducibility [30]   | ACM           | STOC                    | С    | 1973 | A                   |  |  |  |  |
| A unified approach to global program optimization [31]   | ACM           | POPL                    | С    | 1973 | A, D, E, M,<br>O, S |  |  |  |  |
| Fast algorithms for the elimination of common subexpressions [32]  | Springer      | Acta Inf.               | J    | 1973 | A, D, E, O          |  |  |  |  |
| Interprocedural Analysis and the Information derived by it [33]  | Springer      | Prog.<br>Meth.          | J    | 1974 | -                   |  |  |  |  |
| Register allocation via usage counts [34]  | ACM           | CACM                    | J    | 1974 | A                   |  |  |  |  |
| Analysis of structured programs [35]   | ACM           | STOC                    | C    | 1974 | D                   |  |  |  |  |
| Characterizations of Reducible Flow Graphs [36]  | ACM           | JACM                    | J    | 1974 | D, E                |  |  |  |  |
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| Title   | Venue<br>Type | Venue<br>Name               | Type | Year    | Sources         |
|---|---------------|-----------------------------|------|---------|-----------------|
| The parallel execution of DO loops [37]   | ACM           | CACM                        | J    | 1974    | D, O            |
| Interprocedural Data Flow Analysis [38]   | -             | IFIP                        | J    | 1974    | D, O            |
| Program optimization - theory and practice [39]   | ACM           | PLDI (SCC)                  | C    | 1975    | -               |
| Time and parallel processor bounds for linear recurrence systems [40]   | IEEE          | TCO                         | J    | 1975    | S               |
| A simple algorithm for global data flow analysis problems [41]  | SIAM          | SICOMP                      | J    | 1975    | A, E, O         |
| Program improvement by source to source transformation [42]   | ACM           | POPL                        | С    | 1976    | -               |
| A program data flow analysis procedure [43]   | ACM           | CACM                        | J    | 1976    | A               |
| Recursion analysis for compiler optimization [44]   | ACM           | CACM                        | J    | 1976    | 0               |
| Optimal Code Generation for Expression Trees [45]   | ACM           | JACM                        | J    | 1976    | A, D, E         |
| A Fast and Usually Linear Algorithm for Global Flow Analysis [46]   | ACM           | JACM                        | J    | 1976    | E, O            |
| Code generation for expressions with common subexpressions [47]   | ACM           | POPL                        | C    | 1976    | E, S            |
| Global data flow analysis and iterative algorithms [48]   | ACM           | JACM                        | J    | 1976    | E, O            |
| On Live-Dead Analysis for Global Data Flow Problems [49]  | ACM           | JACM                        | J    | 1977    | A               |
| Symbolic evaluation and the global value graph [50]   | ACM           | POPL                        | C    | 1977    | A               |
| High-level data flow analysis [51]  | ACM           | CACM                        | J    | 1977    | A               |
| Abstract interpretation [52]  | ACM           | POPL                        | C    | 1977    | D               |
| An algorithm for reduction of operator strength [53]  | ACM           | CACM                        | J    | 1977    | Е               |
| A transformation system for developing recursive programs [54]  | ACM           | JACM                        | J    | 1977    | S               |
|   |               | SIGPLAN                     | -    |         |                 |
| Arithmetic shifting considered harmful [55]   | ACM           | Notices                     | J    | 1977    | S               |
| Monotone data flow analysis frameworks [56]   | Springer      | Acta Inf.                   | J    | 1977    | A, D, E, C      |
| Program Improvement by Source-to-Source Transformation [57]   | ACM           | CACM                        | J    | 1977    | D, O            |
| An analysis of inline substitution for a structured programming language [58]                                 | ACM           | CACM                        | J    | 1977    | M, S            |
| A new method for compiler code generation [59]  | ACM           | POPL                        | С    | 1978    | D               |
| A practical interprocedural data flow analysis algorithm [60]   | ACM           | CACM                        | J    | 1978    | A, D, E, C      |
| Data Flow Analysis for Procedural Languages [61]  | ACM           | JACM                        | J    | 1979    | A               |
| Constructing the Call Graph of a Program [62]   | IEEE          | TSE                         | J    | 1979    | 0               |
| Data flow languages [63]  | IEEE          | MARK                        | W    | 1979    | S               |
| Time and parallel processor bounds for Fortran-like loops [64]  | IEEE          | TCO                         | J    | 1979    | S               |
| Unrolling loops in Fortran [65]   | Wiley         | SPE                         | J    | 1979    | S               |
| A fast algorithm for finding dominators in a flowgraph [66]   | ACM           | TOPLAS                      | J    | 1979    | A, E, M, C      |
| An efficient way to find the side effects of procedural calls and the aliases of variables [67]               | ACM           | POPL                        | C    | 1979    | A, D, E, S      |
| Global optimization by suppression of partial redundancies [68]   | ACM           | CAMC                        | J    | 1979    | A, D, E, O<br>S |
| Predicting the effects of optimization on a procedure body [69]   | ACM           | PLDI (SCC)                  | С    | 1979    | E, S            |
| Structural analysis: A new approach to flow analysis in optimizing  | Elsevier      | COLA                        | С    | 1980    | E, 3            |
| compilers [70]  |               | (COMLAN)                    |      |         |                 |
| The design and application of a retargetable peephole optimizer [71]  | ACM           | TOPLAS                      | J    | 1980    | E               |
| Data flow supercomputers [72]   | IEEE          | Computer                    | J    | 1980    | S               |
| Program optimization and parallelization using idioms [73]  | ACM           | POPL                        | С    | 1980    | -               |
| High-speed multiprocessors and compilation techniques [74]  | IEEE          | TCO                         | J    | 1980    | S               |
| A composite algorithm for strength reduction and code movement optimization [75]                              | Springer      | ACIS                        | J    | 1980    | E               |
| Interprocedural data flow analysis in the presence of pointers, procedure variables, and label variables [76] | ACM           | POPL                        | С    | 1980    | A, E, O         |
| Deciding Linear Inequalities by Computing Loop Residues [77]  | ACM           | JACM                        | J    | 1981    | D               |
| A precise inter-procedural data flow algorithm [78]   | ACM           | POPL                        | C    | 1981    | O, S            |
| Register allocation via coloring [79]   | Elsevier      | COLA<br>(COMLAN)            | С    | 1981    | A, D, E, O      |
| Reduction of operator strength [80]   | NJ            | Program<br>flow<br>analysis | J    | 1981    | A, E, S         |
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|---|---------------|-------------------|------|------|---------------------|
| Dependence graphs and compiler optimizations [81]   | ACM           | POPL              | С    | 1981 | O, S                |
| On the performance enhancement of paging systems through program analysis and transformations [82]      | IEEE          | TCO               | J    | 1981 | D, S                |
| Optimizing delayed branches [83]  | ACM           | MICRO             | W    | 1982 | D                   |
| A composite hoisting-strength reduction transformation for global program optimization part i [84]      | T&F           | JCM               | J    | 1982 | E                   |
| Optimization of range checking [85]   | ACM           | PLDI (SCC)        | С    | 1982 | E                   |
| Register allocation and spilling via graph coloring [86]  | ACM           | PLDI              | С    | 1982 | A, D, E, M,<br>O, S |
| Experience with the SETL optimizer [87]   | ACM           | TOPLAS            | J    | 1983 | S                   |
| Postpass Code Optimization of Pipeline Constraints [88]   | ACM           | TOPLAS            | J    | 1983 | A, E                |
| Conversion of control dependence to data dependence [89]  | ACM           | POPL              | С    | 1983 | O, S                |
| Register allocation and exhaustive peephole optimization [90]   | Wiley         | SPE               | J    | 1984 | E                   |
| Automatic generation of peephole optimizations [91]   | Springer      | CC                | С    | 1984 | E                   |
| Analysis of interprocedural side effects in a parallel programming environment [92]                     | Springer      | ICSP              | С    | 1984 | O                   |
| Polyvariant mixed computation for analyzer programs [93]  | Springer      | Acta Inf.         | J    | 1984 | О                   |
| Stream processing [94]  | ACM           | LFP               | C    | 1984 | 0                   |
| A hierarchical basis for reordering transformations [95]  | ACM           | POPL              | С    | 1984 | O                   |
| Register allocation by priority-based coloring [96]   | ACM           | PLDI (SCC)        | С    | 1984 | A, E, O             |
| Automatic loop interchange [97]   | ACM           | PLDI (SCC)        | С    | 1984 | O, S                |
| Efficient computation of flow insensitive interprocedural summary information [98]                      | ACM           | PLDI (SCC)        | С    | 1984 | A, O                |
| On linearizing parallel code [99]   | ACM           | POPL              | С    | 1985 | O                   |
| Distributed execution of functional programs using serial combinators [100]                             | IEEE          | TCO               | J    | 1985 | S                   |
| Strictness analysis-a practical approach [101]  | Springer      | FPCA              | С    | 1985 | S                   |
| A linear algorithm for finding dominators in flow graphs and related problems [102]                     | ACM           | STOC              | С    | 1985 | E, M, O             |
| The impact of interprocedural analysis and optimization in the Rn programming environment [103]         | ACM           | TOPLAS<br>(LOPES) | С    | 1986 | -                   |
| Efficient instruction scheduling for a pipelined architecture [104]                                     | ACM           | PLDI (SCC)        | С    | 1986 | A                   |
| Efficient symbolic analysis of programs [105]   | ACM           | JCSS              | J    | 1986 | A                   |
| Graph-Based Algorithms for Boolean Function Manipulation [106]  | IEEE          | TC                | J    | 1986 | D                   |
| Loops skewing: The wavefront method revisited [107]   | Springer      | JPP               | J    | 1986 | 0                   |
| Highly concurrent scalar processing [108]   | ACM           | CAN               | J    | 1986 | 0                   |
| Multiplication by integer constants [109]   | Wiley         | SPE               | J    | 1986 | S                   |
| Global register allocation at link time [110]   | ACM           | PLDI              | C    | 1986 | A, E                |
| Interprocedural constant propagation [111]  | ACM           | PLDI              | С    | 1986 | A, D, E, O          |
| Interprocedural optimization: eliminating unnecessary recompilation [112]                               | ACM           | CC                | С    | 1986 | A, E, O             |
| Interprocedural dependence analysis and parallelization [113]   | ACM           | PLDI              | С    | 1986 | O, S                |
| Effectiveness of a machine-level, global optimizer [114],   | ACM           | PLDI (SCC)        | С    | 1986 | A, E                |
| Direct parallelization of call statements [115]   | ACM           | PLDI (SCC)        | C    | 1986 | O, S                |
| Code motion of control structures in high-level languages [116]   | ACM           | POPL              | С    | 1986 | E, M                |
| Automatic inference and fast interpretation of peephole optimization rules [117]                        | Wiley         | SPE               | J    | 1987 | E, WI               |
| Compiler Algorithms for Synchronization [118]   | IEEE          | TCO               | J    | 1987 | 0                   |
| Automatic decomposition of scientific programs for parallel   | ACM           | POPL              | C    | 1987 | 0                   |
| execution [119] Guided Self-Scheduling: A Practical Scheduling Scheme for Parallel Supercomputers [120] | IEEE          | TCO               | J    | 1987 | S                   |
|   |               |                   |      |      |                     |

| Title  | Venue<br>Type | Venue<br>Name      | Type | Year | Sources    |
|--|---------------|--------------------|------|------|------------|
| Loop coalescing: A compiler transformation for parallel machines [121]   | ACM           | ICPP               | С    | 1987 | S          |
| Strategies for cache and local memory management by global program transformation [122]                              | Springer      | ICS                | С    | 1987 | S          |
| The program dependence graph and its use in optimization [123]   | ACM           | TOPLAS             | J    | 1987 | A, E, M, O |
| Automatic translation of Fortran programs to vector form [124]   | ACM           | TOPLAS             | J    | 1987 | D, O, S    |
| Efficient and correct execution of parallel programs that share memory [125]   | ACM           | TOPLAS<br>(LOPES)  | C    | 1988 | -          |
| On the control dependence in the program dependence graph [126]  | ACM           | CSC                | С    | 1988 | _          |
| Resource requirements of dataflow programs [127]   | ACM           | ISCA               | C    | 1988 | _          |
| Incremental data flow analysis via dominator and attribute update [128]  | ACM           | POPL               | С    | 1988 | -          |
| An efficient approach to data flow analysis in a multiple pass global optimizer [129]                                | ACM           | PLDI               | С    | 1988 | A          |
| A solution to a problem with Morel and Renvoise's "Global optimization by suppression of partial redundancies" [130] | ACM           | TOPLAS             | J    | 1988 | E          |
| Efficient computation of flow-insensitive interprocedural summary information—a correction [131]                     | ACM           | SIGPLAN<br>Notices | J    | 1988 | О          |
| Dependence of multi-dimensional array references [132]   | ACM           | ICS                | С    | 1988 | О          |
| The importance of direct dependences for automatic parallelization [133]   | ACM           | ICS                | С    | 1988 | O          |
| Introducing symbolic problem solving techniques in the dependence testing phases of a vectorizer [134]               | ACM           | ICS                | C    | 1988 | O          |
| Generating sequential code from parallel code [135]  | ACM           | SC                 | С    | 1988 | O          |
| CRegs: a new kind of memory for referencing arrays and pointers [136]  | ACM           | ICS                | С    | 1988 | -          |
| Advanced loop optimizations for parallel computers [137]   | ACM           | ICS                | С    | 1988 | S          |
| An introduction to a formal theory of dependence analysis [138]  | Springer      | JSC                | J    | 1988 | S          |
| Analysis of interprocedural side effects in a parallel programming environment [139]                                 | ACM           | ICS                | С    | 1988 | S          |
| Array expansion [140]  | ACM           | ICS                | С    | 1988 | S          |
| Loop quantization: A generalized loop unwinding technique [141]  | ACM           | JPDC               | J    | 1988 | S          |
| Supernode partitioning [142]   | ACM           | PLDI               | C    | 1988 | S          |
| A fast algorithm for code movement optimisation [143]  | ACM           | PLDI               | С    | 1988 | A, E       |
| Compiling programs for distributed-memory multiprocessors [144]  | Elsevier      | JSC                | J    | 1988 | O, S       |
| Optimal loop parallelization [145]   | ACM           | PLDI               | C    | 1988 | A, E, M, S |
| Software pipelining: an effective scheduling technique for VLIW machines [146]                                       | ACM           | PLDI               | С    | 1988 | D, E       |
| The program summary graph and flow-sensitive interprocedual data flow analysis [147]                                 | ACM           | PLDI               | С    | 1988 | A, O       |
| A framework for determining useful parallelism [148]   | ACM           | ICS                | С    | 1988 | O, S       |
| An overview of the PTRAN analysis system for multiprocessing [149]   | Elsevier      | JPDC               | J    | 1988 | D, S       |
| Efficient interprocedural analysis for program parallelization and restructuring [150]                               | ACM           | PPoPP<br>(PPEALS)  | C    | 1988 | O, S       |
| Compiling issues for supercomputers [151]  | ACM/IEE       | SC                 | С    | 1988 | O, S       |
| Minimizing register usage penalty at procedure calls [152]   | ACM           | PLDI               | C    | 1988 | A, S       |
| Estimating interlock and improving balance for pipelined architectures [153]   | Elsevier      | JPDC               | J    | 1988 | O, S       |
| Global value numbers and redundant computations [154]  | ACM           | POPL               | С    | 1988 | E, O       |
| Perfect pipelining: A new loop parallelization technique [155]   | Springer      | ESOP               | C    | 1988 | A, S       |
| Code scheduling and register allocation in large basic blocks [156]  | ACM           | SC                 | C    | 1988 | A, E       |
| Interprocedural side-effect analysis in linear time [157]  | ACM           | PLDI               | C    | 1988 | A, E, O    |
| Interprocedural analysis vs. procedure integration [158]   | Elsevier      | IPL                | J    | 1989 | -, -, -    |
| I mogration [100]  |               |                    | J    |      |            |

| Title   | Venue<br>Type | Venue<br>Name                              | Туре | Year | Sources         |
|---|---------------|--|------|------|-----------------|
| Unified management of registers and cache using liveness and cache bypass [159]                   | ACM           | PLDI                                       | С    | 1989 | A               |
| A new algorithm for composite hoisting and strength reduction optimisation [160]                  | T&F           | JCM  | J    | 1989 | Е               |
| Interprocedual data flow testing [161]  | ACM           | SEN  | С    | 1989 | -               |
| Program optimization for instruction caches [162]   | ACM           | ASPLOS                                     | С    | 1989 | A               |
| Dependence analysis for pointer variables [163]   | ACM           | PLDI                                       | C    | 1989 | E               |
| The program dependence graph and vectorization [164]  | ACM           | POPL                                       | С    | 1989 | O               |
| Achieving high instruction cache performance with an optimizing compiler [165]                    | ACM           | ISCA                                       | С    | 1989 | S               |
| Evaluating the performance of four snooping cache coherency protocols [166]                       | IEEE          | ICSA                                       | С    | 1989 | S               |
| Scans as primitive parallel operations [167]  | IEEE          | TCO  | J    | 1989 | S               |
| Code generation using tree matching and dynamic   | ACM           | TOPLAS                                     | J    | 1989 | A, D, E, M      |
| programming [168]   |               |  |      | 1707 |                 |
| Register allocation via clique separators [169]   | ACM           | PLDI                                       | С    | 1989 | A, E            |
| Fast interprocedual alias analysis [170]  | ACM           | POPL                                       | С    | 1989 | A, E, O, S      |
| Coloring heuristics for register allocation [171]   | ACM           | PLDI                                       | С    | 1989 | A, E, O         |
| More iteration space tiling [172]   | ACM/IEE       | SC   | С    | 1989 | A, S            |
| Data dependence analysis on multi-dimensional array references [173]                              | ACM           | ICS  | C    | 1989 | O, S            |
| Spill code minimization techniques for optimizing compliers [174]                                 | ACM           | PLDI                                       | C    | 1989 | A, E            |
| Customization: Optimizing compiler technology for SELF, a dynamically-typed OOP language [175]    | ACM           | PLDI                                       | C    | 1989 | O, S            |
| An efficient method of computing static single assignment form [176]                              | ACM           | POPL                                       | С    | 1989 | A, O            |
| Vectorization of tree traversals [177]  | Elsevier      | JCP  | J    | 1990 | -               |
| Loop displacement: an approach for transforming and scheduling loops for parallel execution [178] | ACM           | SC   | C    | 1990 | -               |
| Experience with interprocedural analysis of array side effects [179]                              | ACM           | SC   | C    | 1990 | -               |
| An approach to ordering optimizing transformations [180]  | ACM           | PPoPP                                      | С    | 1990 | A               |
| Register allocation across procedure and module boundaries [181]                                  | ACM           | PLDI                                       | C    | 1990 | A               |
| Region Scheduling: An Approach for Detecting and Redistributing Parallelism [182]                 | IEEE          | TSE  | J    | 1990 | E               |
| Constructing the procedure call multigraph [183]  | IEEE          | TSE  | J    | 1990 | O               |
| On the perfect accuracy of an approximate subscript analysis test [184]                           | ACM           | CAN  | J    | 1990 | O               |
| Structured dataflow analysis for arrays and its use in an optimizing compiler [185]               | Wiley         | Software:<br>Practice<br>and<br>Experience | J    | 1990 | 0               |
| Compilation of Haskell array comprehensions for scientific computing [186]                        | ACM           | PLDI                                       | С    | 1990 | S               |
| How to read floating point numbers accurately [187]   | ACM           | PLDI                                       | С    | 1990 | S               |
| How to print floating-point numbers accurately [188]  | ACM           | PLDI                                       | С    | 1990 | S               |
| Profile guided code positioning [189]   | ACM           | PLDI                                       | С    | 1990 | S               |
| Updating distributed variables in local computations [190]  | Wiley         | SPE  | J    | 1990 | S               |
| An interval-based approach to exhaustive and incremental interprocedural data-flow analysis [191] | ACM           | TOPLAS                                     | J    | 1990 | E, O            |
| The priority-based coloring approach to register allocation [192]                                 | ACM           | TOPLAS                                     | J    | 1990 | A, D, E, S      |
| Improving register allocation for subscripted variables [193]                                     | ACM           | PLDI                                       | С    | 1990 | A, E, M, O<br>S |
|   | ACM           | PLDI                                       | С    | 1990 | A, E            |
| Analysis of pointers and structures [194]  Loop distribution with arbitrary control flow [195]    | ACM           | PLDI                                       | C    | 1//0 | 11, 1           |

| Title   | Venue<br>Type | Venue<br>Name      | Type | Year | Sources         |
|---|---------------|--------------------|------|------|-----------------|
| Graph coloring register allocation for processors with multi-register operands [196]  | ACM           | PLDI               | С    | 1990 | A, E            |
| On optimal parallelization of arbitrary loops [197]   | Elsevier      | JPDC               | J    | 1991 | -               |
| On the adequacy of dependence-based representations for programs with heaps [198]   | Springer      | TACS               | С    | 1991 | -               |
| Automatic construction of sparse data flow evaluation graphs [199]  | ACM           | POPL               | С    | 1991 | _               |
| Compiler optimizations for Fortran D on MIMD distributed-memory   | ACM           | SC                 | С    | 1991 | -               |
| machines [200]  | ACM           | PLDI               | C    | 1991 | Λ               |
| Register allocation via hierarchical graph coloring [201] Circular scheduling: a new technique to perform software                    | ACM           | PLDI               | С    | 1991 | A               |
| pipelining [202]  | ACM           | PLDI               | С    | 1991 | A               |
| Efficient DAG construction and heuristic calculation for instruction scheduling [203]   | ACM           | MICRO              | W    | 1991 | E               |
| Efficiently computing static single assignment form and the control dependence graph [204]  | ACM           | TOPLAS             | J    | 1991 | M               |
| Software prefetching [205]  | ACM           | ASPLOS             | С    | 1991 | O               |
| Compiling global name-space parallel loops for distributed execution [206]  | IEEE          | TPDS               | J    | 1991 | O               |
| An implementation of interprocedural bounded regular section analysis [207]   | ACM           | TPDS               | J    | 1991 | О               |
| Limits of instruction-level parallelism [208]   | ACM           | ASPLOS             | С    | 1991 | S               |
| Uniform techniques for loop optimization [209]  | ACM           | ICS                | C    | 1991 | S               |
| A data locality optimizing [210]  | ACM           | PLDI               | С    | 1991 | A, D, M, C      |
| Constant propagation with conditional branches [211]  | ACM           | TOPLAS             | J    | 1991 | A, E, M, C<br>S |
| Efficient and exact data dependence analysis [212]  | ACM           | PLDI               | C    | 1991 | A, D, O         |
| Efficiently computing static single assignment [213]  | ACM           | TOPLAS             | J    | 1991 | A, D, E, C      |
| Global instruction scheduling for superscalar machines [214]  | ACM           | PLDI               | С    | 1991 | A, D, E         |
| Practical adaption of the global optimization algorithm of Morel and Renvoise [215]   | ACM           | TOPLAS             | J    | 1991 | A, E            |
| The cache performance and optimizations of blocked algorithms [216]   | ACM           | ASPLOS             | С    | 1991 | A, D            |
| A loop transformation theory and an algorithm to maximize parallelism [217]   | IEEE          | TPDS               | J    | 1991 | O, S            |
| Dataflow analysis of array and scalar references [218]  | Springer      | JPP                | J    | 1991 | A, S            |
| Optimization of array accesses by collective loop transformations [219]   | ACM           | SC                 | С    | 1991 | D, O            |
| Interprocedural transformations for parallel code generation [220]  | ACM/IEE       | SC                 | С    | 1991 | O, S            |
| Practical dependence testing [221]  | ACM           | PLDI               | C    | 1991 | A, O            |
| Procedure merging with instruction caches [222]   | ACM           | PLDI               | C    | 1991 | A, S            |
| An experiment with inline substitution [223]  | Wiley         | SPE                | J    | 1991 | E, S            |
| The transitive closure of control dependence: The iterated join [224]   | ACM           | TOPLAS<br>(LOPLAS) | J    | 1992 | -               |
| Abstract description of pointer data structures: an approach for improving the analysis and optimization of imperative programs [225] | ACM           | TOPLAS (LOPLAS)    | J    | 1992 | -               |
| Abstractions for recursive pointer data structures: improving the analysis and transformation of imperative programs [226]            | ACM           | PLDI               | С    | 1992 | -               |
| Generalized dominators and post-dominators [227]  | ACM           | POPL               | С    | 1992 | -               |
| A comprehensive approach to parallel data flow analysis [228]   | ACM           | ICS                | С    | 1992 | -               |
| Integrating scalar optimization and parallelization [229]   | Springer      | LCPC               | С    | 1992 | A               |
| Sharlit—a tool for building optimizers [230]  | ACM           | PLDI               | С    | 1992 | A               |
| How to analyze large programs efficiently and informatively [231]   | ACM           | PLDI               | C    | 1992 | A               |
| Compiler code transformations for superscalar-based high performance systems [232]  | IEEE          | SC                 | С    | 1992 | A               |

 $Continued\ on\ next\ page$ 

| Title  | Venue<br>Type | Venue<br>Name      | Type   | Year         | Sources |
|--|---------------|--------------------|--------|--------------|---------|
| Engineering a simple, efficient code-generator generator [233]   | ACM           | TOPLAS<br>(LOPLAS) | J      | 1992         | D       |
| Some efficient solutions to the affine scheduling problem. I.<br>One-dimensional time [234]                                  | Elsevier      | JPP                | J      | 1992         | D       |
| Avoiding unconditional jumps by code replication [235] Rematerialization [236]   | ACM<br>ACM    | PLDI<br>PLDI       | C<br>C | 1992<br>1992 | E<br>E  |
| Coloring register pairs [237]  | ACM           | TOPLAS<br>(LOPLAS) | J      | 1992         | E       |
| Optimizing for parallelism and data locality [238]   | ACM           | SC                 | С      | 1992         | O       |
| Maximizing loop parallelism and improving data locality via loop fusion and distribution [239]                               | ACM           | LCPC               | W      | 1992         | O       |
| Beyond induction variables [240]   | ACM           | PLDI               | C      | 1992         | O       |
| Efficient call graph analysis [241]  | ACM           | TOPLAS<br>(LOPLAS) | J      | 1992         | O       |
| A safe approximate algorithm for interprocedural aliasing [242]  | ACM           | PLDI               | C      | 1992         | O       |
| Relaxing SIMD control flow constraints using loop transformations [226]  | ACM           | PLDI               | С      | 1992         | S       |
| Unexpected side effects of inline substitution: a case study [243]   | ACM           | TOPLAS<br>(LOPLAS) | J      | 1992         | S       |
| Eliminating false positives using the omega test [244]   | ACM           | PLDI               | С      | 1992         | A, D, O |
| Lazy code motion [245]   | ACM           | PLDI               | C      | 1992         | A, D, E |
| Software support for speculative loads [246]   | ACM           | ASPLOS             | C      | 1992         | A, E    |
| A practical algorithm for exact array dependence analysis [247]  | ACM           | CACM               | J      | 1992         | O, S    |
| Array privatization for parallel execution of loops [248]  | ACM           | ICS                | С      | 1992         | O, S    |
| The power test for data dependence [249]   | IEEE          | TCO                | J      | 1992         | A, S    |
| Eliminating branches using a superoptimizer and the GNU C compiler [250]   | ACM           | PLDI               | С      | 1992         | E, S    |
| Design and evaluation of a compiler algorithm for prefetching [251]  | ACM           | ASPLOS             | C      | 1992         | D, O    |
| Data dependence and data-flow analysis of arrays [252]   | Springer      | LCPC               | C      | 1992         | -       |
| Advanced compiler optimizations for sparse computations [253]  | ACM           | SC                 | С      | 1993         | -       |
| Access normalization: loop restructuring for NUMA computers [254]  | ACM           | TOCS               | J      | 1993         | -       |
| On the conversion of indirect to direct recursion [255]  | ACM           | TOPLAS<br>(LOPLAS) | J      | 1993         | -       |
| A practical data flow framework for array reference analysis and its use in optimizations [256]                              | ACM           | PLDI               | С      | 1993         | -       |
| Using lifetime predictors to improve memory allocation performance [257]   | ACM           | PLDI               | С      | 1993         | -       |
| Data flow analysis for parallel programs [258]   | ACM           | CSC                | С      | 1993         | -       |
| Dependence-based program analysis [259]  | ACM           | PLDI               | С      | 1993         | A       |
| A variation of Knoop, Rüthing, and Steffen's lazy code motion [260]  | ACM           | PLDI               | С      | 1993         | E       |
| Lazy strength reduction [261]  | C&H           | JPL                | J      | 1993         | A, E    |
| Collective loop fusion for array contraction [262]   | Springer      | LCPC               | С      | 1993         | O       |
| interprocedural constant propagation: an empirical study [263]   | ACM           | TOPLAS<br>(LOPLAS) | J      | 1993         | O       |
| Symbolic analysis: A basis for parallelization, optimization, and scheduling of programs [264]                               | Springer      | LCPC               | W      | 1993         | O       |
| Array-data flow analysis and its use in array privatization [265]  Automatic array alignment in data-parallel programs [266] | ACM<br>ACM    | POPL<br>POPL       | C<br>C | 1993<br>1993 | S<br>S  |
| Global optimizations for parallelism and locality on scalable parallel machines [267]  | ACM           | PLDI               | С      | 1993         | S       |
| Instruction-Level Parallel Processing: History, Overview, and Perspective [268]  | Springer      | JSC                | J      | 1993         | S       |
| A practical system for intermodule code optimization at  | С&Н           | JPL                | J      | 1993         | A       |

| Title  | Venue<br>Type | Venue<br>Name    | Type | Year | Sources |
|--|---------------|------------------|------|------|---------|
| Loop-level parallelism in numeric and symbolic programs [270]  | IEEE          | TPDS             | J    | 1993 | S       |
| Orchestrating interactions among parallel computations [271]   | ACM           | PLDI             | Č    | 1993 | S       |
| The superblock: an effective technique for VLIW and superscalar compilation [272]                      | Springer      | JSC              | J    | 1993 | S       |
| Optimizing array bound checks using flow analysis [273]  | ACM           | PLDI             | С    | 1993 | A, E    |
| Register allocation with instruction scheduling [274]  | ACM           | PLDI             | С    | 1993 | A, E    |
| A methodology for procedure cloning [275]  | Elsevier      | COLA<br>(COMLAN) | J    | 1993 | A, O, S |
| Efficient flow-sensitive interprocedural computation of pointer-induced aliases and side effects [276] | ACM           | POPL             | С    | 1993 | E, O, S |
| Automatic array privatization [277]  | Springer      | LCPC             | W    | 1993 | O, S    |
| Interprocedural modification side effect analysis with pointer aliasing [278]                          | ACM           | PLDI             | С    | 1993 | M, S    |
| Branch prediction for free [279]   | ACM           | PLDI             | С    | 1993 | A, M    |
| The range test: a dependence test for symbolic, non-linear expressions [280]                           | ACM           | SC               | С    | 1994 | -       |
| Link-time optimization of address calculation on a 64-bit architecture [281]                           | ACM           | PLDI             | С    | 1994 | A       |
| Effective partial redundancy elimination [282]   | ACM           | PLDI             | С    | 1994 | A       |
| Partial dead code elimination [283]  | ACM           | PLDI             | С    | 1994 | A       |
| A general data dependence test for dynamic, pointer-based data structures [225]                        | ACM           | PLDI             | С    | 1994 | A       |
| Instruction scheduling over regions: A framework for scheduling across basic blocks [284]              | Springer      | CC               | С    | 1994 | A       |
| Value dependence graphs: representation without taxation [285]   | ACM           | POPL             | С    | 1994 | A       |
| Zero-cost range splitting [286]  | ACM           | PLDI             | С    | 1994 | E       |
| Reducing branch costs via branch alignment [287]   | ACM           | OSR              | J    | 1994 | E       |
| Improving the ratio of memory operations to floating-point operations in loops [288]                   | ACM           | TOPLAS           | J    | 1994 | M       |
| Optimizing multi-method dispatch using compressed dispatch tables [289]                                | ACM           | OOPSLA           | С    | 1994 | М       |
| Improving the accuracy of static branch prediction using branch correlation [290]                      | ACM           | ASPLOS           | С    | 1994 | М       |
| A compiler framework for restructuring data declarations to enhance cache and TLB effectiveness [291]  | IEEE          | CASCON           | С    | 1994 | S       |
| False sharing and spatial locality in multiprocessor caches [292]                                      | IEEE          | TCO              | J    | 1994 | S       |
| Reassociation and strength reduction [293]   | ACM           | SCO              | Č    | 1994 | S       |
| The alignment-distribution graph [294]   | Springer      | LCPC             | W    | 1994 | S       |
| Improvements to graph coloring register allocation [295]   | ACM           | TOPLAS           | J    | 1994 | A, E, M |
| Context-sensitive interprocedural points-to analysis in the presence of function pointers [296]        | ACM           | PLDI             | С    | 1994 | D, E    |
| Interprocedural may-alias analysis for pointers: beyond k-limiting [297]                               | ACM           | PLDI             | С    | 1994 | A, E    |
| Scalar replacement in the presence of conditional control flow [298]                                   | Wiley         | SPE              | J    | 1994 | E, O    |

**Table 1:** The papers from Advanced Compiler Design and Implementation [1] (A), Compilers: Principles, Techniques, and Tools [2] (D), Engineering a Compiler [3] (E), Modern Compiler Implementation in C/Java/ML [4–6] (M), Optimizing Compilers for Modern Architectures: A Dependence-Based Approach [7] (O), and the Bacon's survey [8] (S). In the **Type** column, C stands for conference, J for journal, and W for workshop.

## References

- [1] Steven Muchnick. Advanced compiler design implementation. Morgan kaufmann, 1997.
- [2] Alfred V. Aho, Monica S. Lam, Ravi Sethi, and Jeffrey D. Ullman. *Compilers: Principles, Techniques, and Tools.* Addison-Wesley, Boston, MA, USA, second edition, 2006.
- [3] Keith D. Cooper and Linda Torczon. Engineering a Compiler. Morgan Kaufmann, November 2022.
- [4] Andrew W Appel. Modern compiler design in c, 1998.
- [5] W Appel Andrew and Palsberg Jens. Modern compiler implementation in java. In *ISBN 0–521–58388–8*. Cambridge University Press, 2002.
- [6] Andrew W Appel. Modern compiler implementation in ML. Cambridge university press, 1998.
- [7] Ken Kennedy and John R Allen. Optimizing compilers for modern architectures: a dependence-based approach. Morgan Kaufmann Publishers Inc., 2001.
- [8] David F Bacon, Susan L Graham, and Oliver J Sharp. Compiler transformations for high-performance computing. *ACM Computing Surveys (CSUR)*, 26(4):345–420, 1994.
- [9] Willard V Quine. The problem of simplifying truth functions. *The American mathematical monthly*, 59(8):521–531, 1952.
- [10] Edward J McCluskey. Minimization of boolean functions. *The Bell System Technical Journal*, 35(6):1417–1444, 1956.
- [11] Bruce W Arden, Bernard A Galler, and Robert M Graham. An algorithm for translating boolean expressions. *Journal of the ACM (JACM)*, 9(2):222–239, 1962.
- [12] C. W. Gear. High speed compilation of efficient object code. *Commun. ACM*, 8(8):483–488, August 1965.
- [13] W. M. McKeeman. Peephole optimization. Commun. ACM, 8(7):443–444, July 1965.
- [14] Frances E. Allen. Program optimization. In Mark Halpern and Christopher Shaw, editors, *Annual Review of Automatic Programming*, volume 5, pages 239–307. Pergamon Press, Elmsford, NY, 1966.
- [15] L. P. Horwitz, R. M. Karp, R. E. Miller, and S. Winograd. Index register allocation. *J. ACM*, 13(1):43–61, January 1966.
- [16] A. J. Bernstein. Analysis of programs for parallel processing. *IEEE Transactions on Electronic Computers*, EC-15(5):757–763, 1966.
- [17] Edward S. Lowry and C. W. Medlock. Object code optimization. *Commun. ACM*, 12(1):13–22, January 1969.
- [18] John T Bagwell Jr. Local optimizations. In *Proceedings of a symposium on Compiler optimization*, pages 52–66, 1970.
- [19] Garold S Tjaden and Michael J Flynn. Detection and parallel execution of independent instructions. *IEEE Transactions on computers*, 19(10):889–895, 1970.
- [20] John Cocke. Global common subexpression elimination. In *Proceedings of a Symposium on Compiler Optimization*, page 20–24, New York, NY, USA, 1970. Association for Computing Machinery.
- [21] Ravi Sethi and J. D. Ullman. The generation of optimal code for arithmetic expressions. *J. ACM*, 17(4):715–728, October 1970.
- [22] Frances E. Allen. Control flow analysis. SIGPLAN Not., 5(7):1–19, July 1970.
- [23] Frances E. Allen. A basis for program optimization. In Charles V. Freiman, John E. Griffith, and Jack L. Rosenfeld, editors, *Information Processing, Proceedings of IFIP Congress 1971, Volume 1 Foundations and Systems, Ljubljana, Yugoslavia, August 23-28, 1971*, pages 385–390. North-Holland, 1971.
- [24] Frances E. Allen and John Cocke. A catalogue of optimizing transformations. In Randall Rustin, editor, *Design and Optimization of Compilers*. Prentice-Hall, 1972.

- [25] Matthew S. Hecht and Jeffrey D. Ullman. Flow graph reducibility. In *Proceedings of the Fourth Annual ACM Symposium on Theory of Computing*, STOC '72, page 238–250, New York, NY, USA, 1972. Association for Computing Machinery.
- [26] Ken Kennedy. Use-definition chains with applications. Computer Languages, 3(3):163–179, 1978.
- [27] Ken Kennedy. A global flow analysis algorithm. *International Journal of Computer Mathematics*, 3(1-4):5–15, 1972.
- [28] Ken Kennedy. Safety of code motion. *International Journal of Computer Mathematics*, 3(1-4):117–130, 1972.
- [29] D.J. Kuck, Y. Muraoka, and Shyh-Ching Chen. On the number of operations simultaneously executable in fortran-like programs and their resulting speedup. *IEEE Transactions on Computers*, C-21(12):1293–1310, 1972.
- [30] Robert Tarjan. Testing flow graph reducibility. In *Proceedings of the Fifth Annual ACM Symposium on Theory of Computing*, STOC '73, page 96–107, New York, NY, USA, 1973. Association for Computing Machinery.
- [31] Gary A Kildall. A unified approach to global program optimization. In *Proceedings of the 1st annual ACM SIGACT-SIGPLAN symposium on Principles of programming languages*, pages 194–206, 1973.
- [32] Jeffrey D Ullman. Fast algorithms for the elimination of common subexpressions. *Acta Informatica*, 2(3):191–213, 1973.
- [33] Frances E. Allen. Interprocedural analysis and the information derived by it. In *Programming Methodology, 4th Informatik Symposium*, page 291–322, Berlin, Heidelberg, 1974. Springer-Verlag.
- [34] Robert A Freiburghouse. Register allocation via usage counts. *Communications of the ACM*, 17(11):638–642, 1974.
- [35] S. Rao Kosaraju. Analysis of structured programs. In *Proceedings of the Fifth Annual ACM Symposium on Theory of Computing*, STOC '73, page 240–252, New York, NY, USA, 1973. Association for Computing Machinery.
- [36] M. S. Hecht and J. D. Ullman. Characterizations of reducible flow graphs. J. ACM, 21(3):367–375, July 1974.
- [37] Leslie Lamport. The parallel execution of do loops. Commun. ACM, 17(2):83-93, February 1974.
- [38] Frances E. Allen. Interprocedural data flow analysis. In Jack L. Rosenfeld, editor, *Information Processing, Proceedings of the 6th IFIP Congress 1974, Stockholm, Sweden, August 5-10, 1974*, pages 398–402. North-Holland, 1974.
- [39] David B. Loveman and Ross A. Faneuf. Program optimization theory and practice. *SIGPLAN Not.*, 10(3):97–102, January 1975.
- [40] Shyh-Ching Chen and David J. Kuck. Time and parallel processor bounds for linear recurrence systems. *IEEE Transactions on Computers*, 100(7):701–717, 1975.
- [41] Matthew S Hecht and Jeffrey D Ullman. A simple algorithm for global data flow analysis problems. *SIAM Journal on Computing*, 4(4):519–532, 1975.
- [42] David B. Loveman. Program improvement by source to source transformation. In *Proceedings of the 3rd ACM SIGACT-SIGPLAN Symposium on Principles on Programming Languages*, POPL '76, page 140–152, New York, NY, USA, 1976. Association for Computing Machinery.
- [43] F. E. Allen and J. Cocke. A program data flow analysis procedure. *Commun. ACM*, 19(3):137, March 1976.
- [44] Kenneth G Walter. Recursion analysis for compiler optimization. *Communications of the ACM*, 19(9):514–516, 1976.
- [45] A. V. Aho and S. C. Johnson. Optimal code generation for expression trees. J. ACM, 23(3):488-501,

- July 1976.
- [46] Susan L. Graham and Mark Wegman. A fast and usually linear algorithm for global flow analysis. *J. ACM*, 23(1):172–202, January 1976.
- [47] Alfred V Aho, Stephen C Johnson, and Jeffrey D Ullman. Code generation for expressions with common subexpressions. In *Proceedings of the 3rd ACM SIGACT-SIGPLAN symposium on Principles on programming languages*, pages 19–31, 1976.
- [48] John B Kam and Jeffrey D Ullman. Global data flow analysis and iterative algorithms. *Journal of the ACM (JACM)*, 23(1):158–171, 1976.
- [49] Lawrence T. Kou. On live-dead analysis for global data flow problems. *J. ACM*, 24(3):473–483, July 1977.
- [50] John H. Reif and Harry R. Lewis. Symbolic evaluation and the global value graph. In *Proceedings of the 4th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '77, page 104–118, New York, NY, USA, 1977. Association for Computing Machinery.
- [51] Barry K. Rosen. High-level data flow analysis. Commun. ACM, 20(10):712-724, October 1977.
- [52] Patrick Cousot and Radhia Cousot. Abstract interpretation: a unified lattice model for static analysis of programs by construction or approximation of fixpoints. In *Proceedings of the 4th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '77, page 238–252, New York, NY, USA, 1977. Association for Computing Machinery.
- [53] John Cocke and Ken Kennedy. An algorithm for reduction of operator strength. *Commun. ACM*, 20(11):850–856, November 1977.
- [54] Rod M Burstall and John Darlington. A transformation system for developing recursive programs. *Journal of the ACM (JACM)*, 24(1):44–67, 1977.
- [55] Guy L. Steele. Arithmetic shifting considered harmful. SIGPLAN Not., 12(11):61–69, November 1977.
- [56] John B Kam and Jeffrey D Ullman. Monotone data flow analysis frameworks. *Acta informatica*, 7(3):305–317, 1977.
- [57] David B. Loveman. Program Improvement by Source-to-Source Transformation. *Journal of the ACM*, 24(1):121–145, January 1977.
- [58] Robert W. Scheifler. An analysis of inline substitution for a structured programming language. *Commun. ACM*, 20(9):647–654, September 1977.
- [59] R. Steven Glanville and Susan L. Graham. A new method for compiler code generation. In *Proceedings of the 5th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '78, page 231–254, New York, NY, USA, 1978. Association for Computing Machinery.
- [60] Jeffrey M. Barth. A practical interprocedural data flow analysis algorithm. *Commun. ACM*, 21(9):724–736, September 1978.
- [61] Barry K. Rosen. Data flow analysis for procedural languages. J. ACM, 26(2):322–344, April 1979.
- [62] B.G. Ryder. Constructing the call graph of a program. *IEEE Transactions on Software Engineering*, SE-5(3):216–226, 1979.
- [63] William B Ackerman. Data flow languages. In 1979 International Workshop on Managing Requirements Knowledge (MARK), pages 1087–1095. IEEE, 1979.
- [64] Shyh-Ching Chen et al. Time and parallel processor bounds for fortran-like loops. *IEEE Transactions on Computers*, 100(9):660–670, 1979.
- [65] Jack J Dongarra and A\_R Hinds. Unrolling loops in fortran. *Software: Practice and Experience*, 9(3):219–226, 1979.
- [66] Thomas Lengauer and Robert Endre Tarjan. A fast algorithm for finding dominators in a flowgraph. *ACM Trans. Program. Lang. Syst.*, 1(1):121–141, January 1979.

- [67] John P Banning. An efficient way to find the side effects of procedure calls and the aliases of variables. In *Proceedings of the 6th ACM SIGACT-SIGPLAN symposium on Principles of programming languages*, pages 29–41, 1979.
- [68] E. Morel and C. Renvoise. Global optimization by suppression of partial redundancies. *Commun. ACM*, 22(2):96–103, February 1979.
- [69] J Eugene Ball. Predicting the effects of optimization on a procedure body. *ACM SIGPLAN Notices*, 14(8):214–220, 1979.
- [70] M. Sharir. Structural analysis: A new approach to flow analysis in optimizing compilers. *Comput. Lang.*, 5(3–4):141–153, January 1980.
- [71] Jack W Davidson and Christopher W Fraser. The design and application of a retargetable peephole optimizer. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 2(2):191–202, 1980.
- [72] Jack B Dennis. Data flow supercomputers. Computer, 13(11):48–56, 1980.
- [73] Shlomit S. Pinter and Ron Y. Pinter. Program optimization and parallelization using idioms. In *Proceedings of the 18th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '91, page 79–92, New York, NY, USA, 1991. Association for Computing Machinery.
- [74] Padua, Kuck, and Lawrie. High-speed multiprocessors and compilation techniques. *IEEE Transactions on Computers*, 100(9):763–776, 1980.
- [75] Dhananjay M Dhamdhere and JR Isaac. A composite algorithm for strength reduction and code movement optimization. *International Journal of Computer & Information Sciences*, 9:243–273, 1980.
- [76] William E. Weihl. Interprocedural data flow analysis in the presence of pointers, procedure variables, and label variables. In *Proceedings of the 7th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '80, page 83–94, New York, NY, USA, 1980. Association for Computing Machinery.
- [77] Robert Shostak. Deciding linear inequalities by computing loop residues. J. ACM, 28(4):769–779, October 1981.
- [78] Eugene M. Myers. A precise inter-procedural data flow algorithm. In *Proceedings of the 8th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '81, page 219–230, New York, NY, USA, 1981. Association for Computing Machinery.
- [79] Gregory J Chaitin, Marc A Auslander, Ashok K Chandra, John Cocke, Martin E Hopkins, and Peter W Markstein. Register allocation via coloring. *Computer languages*, 6(1):47–57, 1981.
- [80] Frances E Allen, John Cocke, and Ken Kennedy. Reduction of operator strength. *Program Flow Analysis*, pages 79–101, 1981.
- [81] D. J. Kuck, R. H. Kuhn, D. A. Padua, B. Leasure, and M. Wolfe. Dependence graphs and compiler optimizations. In *Proceedings of the 8th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '81, page 207–218, New York, NY, USA, 1981. Association for Computing Machinery.
- [82] Kuck and Lawrie. On the performance enhancement of paging systems through program analysis and transformations. *IEEE Transactions on Computers*, 100(5):341–356, 1981.
- [83] Thomas R. Gross and John L. Hennessy. Optimizing delayed branches. *SIGMICRO Newsl.*, 13(4):114–120, October 1982.
- [84] SM Joshi and Dhananjay M Dhamdhere. A composite hoisting-strength reduction transformation for global program optimization part i. *International Journal of Computer Mathematics*, 11(1):21–41, 1982.
- [85] Victoria Markstein, John Cocke, and Peter Markstein. Optimization of range checking. In *Proceedings* of the 1982 SIGPLAN Symposium on Compiler Construction, SIGPLAN '82, page 114–119, New York,

- NY, USA, 1982. Association for Computing Machinery.
- [86] Gregory J Chaitin. Register allocation and spilling via graph coloring. *ACM Sigplan Notices*, 17(6):98–101, 1982.
- [87] Stefan M Freudenberger, Jacob T Schwartz, and Micha Sharir. Experience with the setl optimizer. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 5(1):26–45, 1983.
- [88] John L. Hennessy and Thomas Gross. Postpass code optimization of pipeline constraints. *ACM Trans. Program. Lang. Syst.*, 5(3):422–448, July 1983.
- [89] John R Allen, Ken Kennedy, Carrie Porterfield, and Joe Warren. Conversion of control dependence to data dependence. In *Proceedings of the 10th ACM SIGACT-SIGPLAN symposium on Principles of programming languages*, pages 177–189, 1983.
- [90] Jack W Davidson and Christopher W Fraser. Register allocation and exhaustive peephole optimization. *Software: Practice and Experience*, 14(9):857–865, 1984.
- [91] Jack W Davidson and Christopher W Fraser. Automatic generation of peephole optimizations. In *Proceedings of the 1984 SIGPLAN symposium on Compiler construction*, pages 111–116, 1984.
- [92] David Callahan and Ken Kennedy. Analysis of interprocedural side effects in a parallel programming environment. In *International Conference on Supercomputing*, pages 138–171. Springer, 1987.
- [93] Mikhail A. Bulyonkov. Polyvariant mixed computation for analyzer programs. *Acta Informatica*, 21(5):473–484, 1984.
- [94] Allen Goldberg and Robert Paige. Stream processing. In *Proceedings of the 1984 ACM Symposium on LISP and Functional Programming*, LFP '84, page 53–62, New York, NY, USA, 1984. Association for Computing Machinery.
- [95] Joe Warren. A hierarchical basis for reordering transformations. In *Proceedings of the 11th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '84, page 272–282, New York, NY, USA, 1984. Association for Computing Machinery.
- [96] Frederick Chow and John Hennessy. Register allocation by priority-based coloring. *SIGPLAN Not.*, 19(6):222–232, June 1984.
- [97] John R Allen and Ken Kennedy. Automatic loop interchange. In *Proceedings of the 1984 SIGPLAN symposium on Compiler construction*, pages 233–246, 1984.
- [98] Keith D Cooper and Ken Kennedy. Efficient computation of flow insensitive interprocedural summary information. In *Proceedings of the 1984 SIGPLAN symposium on Compiler construction*, pages 247–258, 1984.
- [99] Jeanne Ferrante and Mary Mace. On linearizing parallel code. In *Proceedings of the 12th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '85, page 179–190, New York, NY, USA, 1985. Association for Computing Machinery.
- [100] Paul Hudak and Benjamin Goldberg. Distributed execution of functional programs using serial combinators. *IEEE Transactions on computers*, 100(10):881–891, 1985.
- [101] Chris Clack and Simon L Peyton Jones. Strictness analysis-a practical approach. In *Conference on Functional Programming Languages and Computer Architecture*, pages 35–49. Springer, 1985.
- [102] D Harel. A linear algorithm for finding dominators in flow graphs and related problems. In *Proceedings of the Seventeenth Annual ACM Symposium on Theory of Computing*, STOC '85, page 185–194, New York, NY, USA, 1985. Association for Computing Machinery.
- [103] Keith D. Cooper, Ken Kennedy, and Linda Torczon. The impact of interprocedural analysis and optimization in the rn programming environment. *ACM Trans. Program. Lang. Syst.*, 8(4):491–523, August 1986.
- [104] Philip B Gibbons and Steven S Muchnick. Efficient instruction scheduling for a pipelined architecture.

- In Proceedings of the 1986 SIGPLAN symposium on Compiler construction, pages 11–16, 1986.
- [105] John H. Reif and Harry R. Lewis. Efficient symbolic analysis of programs. *Journal of Computer and System Sciences*, 32(3):280–314, 1986.
- [106] Randal E. Bryant. Graph-based algorithms for boolean function manipulation. *IEEE Transactions on Computers*, C-35(8):677–691, 1986.
- [107] Michael Wolfe. Loops skewing: The wavefront method revisited. *International Journal of Parallel Programming*, 15(4):279–293, 1986.
- [108] P YT Hsu and Edward S Davidson. Highly concurrent scalar processing. *ACM SIGARCH Computer Architecture News*, 14(2):386–395, 1986.
- [109] Robert Bernstein. Multiplication by integer constants. *Software: practice and experience*, 16(7):641–652, 1986.
- [110] David W. Wall. Global register allocation at link time. In *Proceedings of the 1986 SIGPLAN Symposium on Compiler Construction*, SIGPLAN '86, page 264–275, New York, NY, USA, 1986. Association for Computing Machinery.
- [111] David Callahan, Keith D Cooper, Ken Kennedy, and Linda Torczon. Interprocedural constant propagation. *ACM SIGPLAN Notices*, 21(7):152–161, 1986.
- [112] Keith D. Cooper, Ken Kennedy, and Linda Torczon. Interprocedural optimization: eliminating unnecessary recompilation. In *Proceedings of the 1986 SIGPLAN Symposium on Compiler Construction*, SIGPLAN '86, page 58–67, New York, NY, USA, 1986. Association for Computing Machinery.
- [113] Michael Burke and Ron Cytron. Interprocedural dependence analysis and parallelization. *ACM Sigplan Notices*, 21(7):162–175, 1986.
- [114] Mark S. Johnson and Terrence C. Miller. Effectiveness of a machine-level, global optimizer. In *Proceedings of the 1986 SIGPLAN Symposium on Compiler Construction*, SIGPLAN '86, page 99–108, New York, NY, USA, 1986. Association for Computing Machinery.
- [115] Rémi Triolet, François Irigoin, and Paul Feautrier. Direct parallelization of call statements. *SIGPLAN Not.*, 21(7):176–185, July 1986.
- [116] Ron Cytron, Andy Lowry, and F Kenneth Zadeck. Code motion of control structures in high-level languages. In *Proceedings of the 13th ACM SIGACT-SIGPLAN symposium on Principles of programming languages*, pages 70–85, 1986.
- [117] Jack W Davidson and Christopher W Fraser. Automatic inference and fast interpretation of peephole optimization rules. *Software: Practice and Experience*, 17(11):801–812, 1987.
- [118] Samuel P. Midkiff and David A. Padua. Compiler algorithms for synchronization. *IEEE Transactions on Computers*, C-36(12):1485–1495, 1987.
- [119] r. Allen, D. Callahan, and K. Kennedy. Automatic decomposition of scientific programs for parallel execution. In *Proceedings of the 14th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages*, POPL '87, page 63–76, New York, NY, USA, 1987. Association for Computing Machinery.
- [120] Constantine D. Polychronopoulos and David J. Kuck. Guided self-scheduling: A practical scheduling scheme for parallel supercomputers. *IEEE Transactions on Computers*, C-36(12):1425–1439, 1987.
- [121] Constantine D Polychronopoulos. Loop coalescing: A compiler transformation for parallel machines. Technical report, Illinois Univ., Urbana (USA), 1987.
- [122] Dennis Gannon, William Jalby, and Kyle Gallivan. Strategies for cache and local memory management by global program transformation. In *International Conference on Supercomputing*, pages 229–254. Springer, 1987.
- [123] Jeanne Ferrante, Karl J Ottenstein, and Joe D Warren. The program dependence graph and its use in optimization. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 9(3):319–349,

1987.

- [124] Randy Allen and Ken Kennedy. Automatic translation of fortran programs to vector form. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 9(4):491–542, 1987.
- [125] Dennis Shasha and Marc Snir. Efficient and correct execution of parallel programs that share memory. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 10(2):282–312, 1988.
- [126] I. A. Natour. On the control dependence in the program dependence graph. In *Proceedings of the* 1988 ACM Sixteenth Annual Conference on Computer Science, CSC '88, page 510–519, New York, NY, USA, 1988. Association for Computing Machinery.
- [127] D. E. Culler and Arvind. Resource requirements of dataflow programs. In *Proceedings of the 15th Annual International Symposium on Computer Architecture*, ISCA '88, page 141–150, Washington, DC, USA, 1988. IEEE Computer Society Press.
- [128] M. D. Carroll and B. G. Ryder. Incremental data flow analysis via dominator and attribute update. In *Proceedings of the 15th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '88, page 274–284, New York, NY, USA, 1988. Association for Computing Machinery.
- [129] S. Jain and C. Thompson. An efficient approach to data flow analysis in a multiple pass global optimizer. *SIGPLAN Not.*, 23(7):154–163, June 1988.
- [130] Karl-Heinz Drechsler and Manfred P. Stadel. A solution to a problem with morel and renvoise's "global optimization by suppression of partial redundancies". *ACM Trans. Program. Lang. Syst.*, 10(4):635–640, October 1988.
- [131] Keith D Cooper and Ken Kennedy. Efficient computation of flow-insensitive interprocedural summary information—a correction. *ACM SIGPLAN Notices*, 23(4):35–42, 1988.
- [132] D. R. Wallace. Dependence of multi-dimensional array references. In *Proceedings of the 2nd International Conference on Supercomputing*, ICS '88, page 418–428, New York, NY, USA, 1988. Association for Computing Machinery.
- [133] T. Brandes. The importance of direct dependences for automatic parallelization. In *Proceedings of the 2nd International Conference on Supercomputing*, ICS '88, page 407–417, New York, NY, USA, 1988. Association for Computing Machinery.
- [134] A. Lichnewsky and F. Thomasset. Introducing symbolic problem solving techniques in the dependence testing phases of a vectorizer. In *Proceedings of the 2nd International Conference on Supercomputing*, ICS '88, page 396–406, New York, NY, USA, 1988. Association for Computing Machinery.
- [135] J. Ferrante, M. Mace, and B. Simons. Generating sequential code from parallel code. In *Proceedings of the 2nd International Conference on Supercomputing*, ICS '88, page 582–592, New York, NY, USA, 1988. Association for Computing Machinery.
- [136] H. Dietz and C.-H. Chi. Cregs: a new kind of memory for referencing arrays and pointers. In Supercomputing '88:Proceedings of the 1988 ACM/IEEE Conference on Supercomputing, Vol. I, pages 360–367, 1988.
- [137] Constantine D. Polychronopoulos. Advanced loop optimizations for parallel computers. In E. N. Houstis, T. S. Papatheodorou, and C. D. Polychronopoulos, editors, *Supercomputing*, pages 255–277, Berlin, Heidelberg, 1988. Springer Berlin Heidelberg.
- [138] Utpal Banerjee. An introduction to a formal theory of dependence analysis. *The Journal of Super-computing*, 2:133–149, 1988.
- [139] David Callahan and Ken Kennedy. Analysis of interprocedural side effects in a parallel programming environment. In E. N. Houstis, T. S. Papatheodorou, and C. D. Polychronopoulos, editors, *Supercomputing*, pages 138–171, Berlin, Heidelberg, 1988. Springer Berlin Heidelberg.
- [140] Paul Feautrier. Array expansion. In ACM International Conference on Supercomputing 25th Anniver-

- sary Volume, pages 99-111, 1988.
- [141] Alexandru Nicolau. Loop quantization: A generalized loop unwinding technique. *Journal of Parallel and Distributed Computing*, 5(5):568–586, 1988.
- [142] François Irigoin and Rémi Triolet. Supernode partitioning. In *Proceedings of the 15th ACM SIGPLAN-SIGACT symposium on Principles of programming languages*, pages 319–329, 1988.
- [143] Dhananjay M Dhamdhere. A fast algorithm for code movement optimisation. *ACM SIGPLAN Notices*, 23(10):172–180, 1988.
- [144] David Callahan and Ken Kennedy. Compiling programs for distributed-memory multiprocessors. *The Journal of Supercomputing*, 2:151–169, 1988.
- [145] Alexander Aiken and Alexandru Nicolau. Optimal loop parallelization. *ACM SIGPLAN Notices*, 23(7):308–317, 1988.
- [146] M. Lam. Software pipelining: an effective scheduling technique for vliw machines. *SIGPLAN Not.*, 23(7):318–328, June 1988.
- [147] David Callahan. The program summary graph and flow-sensitive interprocedual data flow analysis. In *Proceedings of the ACM SIGPLAN 1988 conference on Programming Language design and Implementation*, pages 47–56, 1988.
- [148] Frances Allen, Michael Burke, Ron Cytron, Jeanne Ferrante, and Wilson Hsieh. A framework for determining useful parallelism. In *Proceedings of the 2nd international conference on Supercomputing*, pages 207–215, 1988.
- [149] Frances Allen, Michael Burke, Philippe Charles, Ron Cytron, and Jeanne Ferrante. An overview of the ptran analysis system for multiprocessing. *Journal of parallel and distributed computing*, 5(5):617–640, 1988.
- [150] Zhiyuan Li and Pen-Chung Yew. Efficient interprocedural analysis for program parallelization and restructuring. *SIGPLAN Not.*, 23(9):85–99, January 1988.
- [151] M. Girkar and C. Polychronoupoulos. Compiling issues for supercomputers. In *Supercomputing* '88:Proceedings of the 1988 ACM/IEEE Conference on Supercomputing, Vol. I, pages 164–173, 1988.
- [152] Fred C Chow. Minimizing register usage penalty at procedure calls. In *Proceedings of the ACM SIGPLAN 1988 conference on Programming Language design and Implementation*, pages 85–94, 1988.
- [153] David Callahan, John Cocke, and Ken Kennedy. Estimating interlock and improving balance for pipelined architectures. *Journal of Parallel and Distributed Computing*, 5(4):334–358, 1988.
- [154] B. K. Rosen, M. N. Wegman, and F. K. Zadeck. Global value numbers and redundant computations. In *Proceedings of the 15th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '88, page 12–27, New York, NY, USA, 1988. Association for Computing Machinery.
- [155] Alexander Aiken and Alexandru Nicolau. Perfect pipelining: A new loop parallelization technique. In *European Symposium on Programming*, pages 221–235. Springer, 1988.
- [156] James R Goodman and W-C Hsu. Code scheduling and register allocation in large basic blocks. In *ACM International Conference on Supercomputing 25th Anniversary Volume*, pages 88–98, 1988.
- [157] Keith D Cooper and Ken Kennedy. Interprocedural side-effect analysis in linear time. *ACM SIGPLAN Notices*, 23(7):57–66, 1988.
- [158] Stephen Richardson and Mahadevan Ganapathi. Interprocedural analysis vs. procedure integration. *Information Processing Letters*, 32(3):137–142, 1989.
- [159] C-H Chi and Hank Dietz. Unified management of registers and cache using liveness and cache bypass. In *Proceedings of the ACM SIGPLAN 1989 conference on Programming language design and implementation*, pages 344–353, 1989.
- [160] Dhananjay M Dhamdhere. A new algorithm for composite hoisting and strength reduction optimi-

- sation. International Journal of Computer Mathematics, 27(1):1-14, 1989.
- [161] Mary Jean Harrold and Mary Lou Soffa. Interprocedual data flow testing. *SIGSOFT Softw. Eng. Notes*, 14(8):158–167, November 1989.
- [162] S. McFarling. Program optimization for instruction caches. SIGARCH Comput. Archit. News, 17(2):183–191, April 1989.
- [163] S. Horwitz, P. Pfeiffer, and T. Reps. Dependence analysis for pointer variables. *SIGPLAN Not.*, 24(7):28–40, June 1989.
- [164] W. Baxter and H. R. Bauer. The program dependence graph and vectorization. In *Proceedings of the* 16th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, POPL '89, page 1–11, New York, NY, USA, 1989. Association for Computing Machinery.
- [165] W-m W Hwu and Pohua P Chang. Achieving high instruction cache performance with an optimizing compiler. In *Proceedings of the 16th Annual International Symposium on Computer Architecture*, pages 242–251, 1989.
- [166] Susan J Eggers and Randy H Katz. Evaluating the performance of four snooping cache coherency protocols. In *Proceedings of the 16th annual international symposium on Computer architecture*, pages 2–15, 1989.
- [167] Guy E Blelloch. Scans as primitive parallel operations. *IEEE Transactions on computers*, 38(11):1526–1538, 1989.
- [168] Alfred V. Aho, Mahadevan Ganapathi, and Steven W. K. Tjiang. Code generation using tree matching and dynamic programming. *ACM Trans. Program. Lang. Syst.*, 11(4):491–516, October 1989.
- [169] R. Gupta, M. L. Soffa, and T. Steele. Register allocation via clique separators. In *Proceedings of the ACM SIGPLAN 1989 Conference on Programming Language Design and Implementation*, PLDI '89, page 264–274, New York, NY, USA, 1989. Association for Computing Machinery.
- [170] K. D. Cooper and K. Kennedy. Fast interprocedual alias analysis. In *Proceedings of the 16th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '89, page 49–59, New York, NY, USA, 1989. Association for Computing Machinery.
- [171] P. Briggs, K. D. Cooper, K. Kennedy, and L. Torczon. Coloring heuristics for register allocation. In *Proceedings of the ACM SIGPLAN 1989 Conference on Programming Language Design and Implementation*, PLDI '89, page 275–284, New York, NY, USA, 1989. Association for Computing Machinery.
- [172] M. Wolfe. More iteration space tiling. In *Proceedings of the 1989 ACM/IEEE Conference on Supercomputing*, Supercomputing '89, page 655–664, New York, NY, USA, 1989. Association for Computing Machinery.
- [173] Zhiyuan Li, Pen-Chung Yew, and Chuag-Qi Zhu. Data dependence analysis on multi-dimensional array references. In *Proceedings of the 3rd International Conference on Supercomputing*, ICS '89, page 215–224, New York, NY, USA, 1989. Association for Computing Machinery.
- [174] D. Bernstein, M. Golumbic, y. Mansour, R. Pinter, D. Goldin, H. Krawczyk, and I. Nahshon. Spill code minimization techniques for optimizing compliers. In *Proceedings of the ACM SIGPLAN 1989 Conference on Programming Language Design and Implementation*, PLDI '89, page 258–263, New York, NY, USA, 1989. Association for Computing Machinery.
- [175] Craig Chambers and David Ungar. Customization: Optimizing compiler technology for self, a dynamically-typed object-oriented programming language. *ACM SIGPLAN Notices*, 24(7):146–160, 1989.
- [176] Ron Cytron, Jeanne Ferrante, Barry K Rosen, Mark N Wegman, and F Kenneth Zadeck. An efficient method of computing static single assignment form. In *Proceedings of the 16th ACM SIGPLAN-SIGACT symposium on Principles of programming languages*, pages 25–35, 1989.

- [177] Lars Hernquist. Vectorization of tree traversals. *Journal of Computational Physics*, 87(1):137–147, 1990.
- [178] R. Gupta. Loop displacement: an approach for transforming and scheduling loops for parallel execution. In *Supercomputing '90:Proceedings of the 1990 ACM/IEEE Conference on Supercomputing*, pages 388–397, 1990.
- [179] Paul Havlak and Ken Kennedy. Experience with interprocedural analysis of array side effects. In *Proceedings of the 1990 ACM/IEEE Conference on Supercomputing*, Supercomputing '90, page 952–961, Washington, DC, USA, 1990. IEEE Computer Society Press.
- [180] D. Whitfield and M. L. Soffa. An approach to ordering optimizing transformations. In *Proceedings of the Second ACM SIGPLAN Symposium on Principles & Description of Parallel Programming*, PPOPP '90, page 137–146, New York, NY, USA, 1990. Association for Computing Machinery.
- [181] Vatsa Santhanam and Daryl Odnert. Register allocation across procedure and module boundaries. *SIGPLAN Not.*, 25(6):28–39, June 1990.
- [182] Rajiv Gupta and Mary Lou Soffa. Region scheduling: An approach for detecting and redistributing parallelism. *IEEE Trans. Softw. Eng.*, 16(4):421–431, April 1990.
- [183] D. Callahan, A. Carle, M.W. Hall, and K. Kennedy. Constructing the procedure call multigraph. *IEEE Transactions on Software Engineering*, 16(4):483–487, 1990.
- [184] David Klappholz, Kleanthis Psarris, and Xiangyun Kong. On the perfect accuracy of an approximate subscript analysis test. *ACM SIGARCH Computer Architecture News*, 18(3b):201–212, 1990.
- [185] Thomas Gross and Peter Steenkiste. Structured dataflow analysis for arrays and its use in an optimizing compiler. *Software: Practice and Experience*, 20(2):133–155, 1990.
- [186] Steven Anderson and Paul Hudak. Compilation of haskell array comprehensions for scientific computing. *ACM SIGPLAN Notices*, 25(6):137–149, 1990.
- [187] William D. Clinger. How to read floating point numbers accurately. *SIGPLAN Not.*, 25(6):92–101, June 1990.
- [188] Guy L. Steele and Jon L. White. How to print floating-point numbers accurately. *SIGPLAN Not.*, 25(6):112–126, June 1990.
- [189] Karl Pettis and Robert C. Hansen. Profile guided code positioning. SIGPLAN Not., 25(6):16–27, June 1990
- [190] Michael Gerndt. Updating distributed variables in local computations. *Concurrency: Practice and Experience*, 2(3):171–193, 1990.
- [191] Michael Burke. An interval-based approach to exhaustive and incremental interprocedural data-flow analysis. *ACM Trans. Program. Lang. Syst.*, 12(3):341–395, July 1990.
- [192] Fred C Chow and John L Hennessy. The priority-based coloring approach to register allocation. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 12(4):501–536, 1990.
- [193] David Callahan, Steve Carr, and Ken Kennedy. Improving register allocation for subscripted variables. *ACM Sigplan Notices*, 25(6):53–65, 1990.
- [194] David R. Chase, Mark Wegman, and F. Kenneth Zadeck. Analysis of pointers and structures. In *Proceedings of the ACM SIGPLAN 1990 Conference on Programming Language Design and Implementation*, PLDI '90, page 296–310, New York, NY, USA, 1990. Association for Computing Machinery.
- [195] Ken Kennedy and Kathryn S McKinley. Loop distribution with arbitrary control flow. In *SC*, pages 407–416. Citeseer, 1990.
- [196] Brian R. Nickerson. Graph coloring register allocation for processors with multi-register operands. *SIGPLAN Not.*, 25(6):40–52, June 1990.
- [197] Uwe Schwiegelshohn, Franco Gasperoni, and Kemal Ebcioğlu. On optimal parallelization of arbitrary

- loops. Journal of Parallel and Distributed Computing, 11(2):130-134, 1991.
- [198] Phil Pfeiffer and Rebecca Parsons Selke. On the adequacy of dependence-based representations for programs with heaps. In Takayasu Ito and Albert R. Meyer, editors, *Theoretical Aspects of Computer Software*, pages 365–386, Berlin, Heidelberg, 1991. Springer Berlin Heidelberg.
- [199] Jong-Deok Choi, Ron Cytron, and Jeanne Ferrante. Automatic construction of sparse data flow evaluation graphs. In *Proceedings of the 18th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '91, page 55–66, New York, NY, USA, 1991. Association for Computing Machinery.
- [200] Seema Hiranandani, Ken Kennedy, and Chau-Wen Tseng. Compiler optimizations for fortran d on mimd distributed-memory machines. In *Supercomputing '91:Proceedings of the 1991 ACM/IEEE Conference on Supercomputing*, pages 86–100, 1991.
- [201] David Callahan and Brian Koblenz. Register allocation via hierarchical graph coloring. *ACM Sigplan Notices*, 26(6):192–203, 1991.
- [202] Suneel Jain. Circular scheduling: a new technique to perform software pipelining. In *Proceedings of the ACM SIGPLAN 1991 Conference on Programming Language Design and Implementation*, PLDI '91, page 219–228, New York, NY, USA, 1991. Association for Computing Machinery.
- [203] Mark Smotherman, Sanjay Krishnamurthy, P. S. Aravind, and David Hunnicutt. Efficient dag construction and heuristic calculation for instruction scheduling. In *Proceedings of the 24th Annual International Symposium on Microarchitecture*, MICRO 24, page 93–102, New York, NY, USA, 1991. Association for Computing Machinery.
- [204] Ron Cytron, Jeanne Ferrante, Barry K. Rosen, Mark N. Wegman, and F. Kenneth Zadeck. Efficiently computing static single assignment form and the control dependence graph. *ACM Trans. Program. Lang. Syst.*, 13(4):451–490, October 1991.
- [205] David Callahan, Ken Kennedy, and Allan Porterfield. Software prefetching. In *Proceedings of the Fourth International Conference on Architectural Support for Programming Languages and Operating Systems*, ASPLOS IV, page 40–52, New York, NY, USA, 1991. Association for Computing Machinery.
- [206] C. Koelbel and P. Mehrotra. Compiling global name-space parallel loops for distributed execution. *IEEE Transactions on Parallel and Distributed Systems*, 2(4):440–451, 1991.
- [207] Paul Havlak and Ken Kennedy. An implementation of interprocedural bounded regular section analysis. *IEEE Transactions on Parallel & Distributed Systems*, 2(03):350–360, 1991.
- [208] David W. Wall. Limits of instruction-level parallelism. SIGOPS Oper. Syst. Rev., 25(Special Issue):176–188, April 1991.
- [209] William Pugh. Uniform techniques for loop optimization. In *Proceedings of the 5th international conference on Supercomputing*, pages 341–352, 1991.
- [210] Michael E. Wolf and Monica S. Lam. A data locality optimizing algorithm. *SIGPLAN Not.*, 26(6):30–44, May 1991.
- [211] Mark N. Wegman and F. Kenneth Zadeck. Constant Propagation with Conditional Branches. *ACM Transactions on Programming Languages and Systems*, 13(2):181–210, April 1991.
- [212] Dror E. Maydan, John L. Hennessy, and Monica S. Lam. Efficient and exact data dependence analysis. *SIGPLAN Not.*, 26(6):1–14, May 1991.
- [213] Ron Cytron, Jeanne Ferrante, Barry K. Rosen, Mark N. Wegman, and F. Kenneth Zadeck. Efficiently computing static single assignment form and the control dependence graph. *ACM Trans. Program. Lang. Syst.*, 13(4):451–490, October 1991.
- [214] David Bernstein and Michael Rodeh. Global instruction scheduling for superscalar machines. *SIG-PLAN Not.*, 26(6):241–255, May 1991.

- [215] Dhananjay M. Dhamdhere. Practical adaption of the global optimization algorithm of morel and renvoise. ACM Transactions on Programming Languages and Systems (TOPLAS), 13(2):291–294, 1991.
- [216] Monica D. Lam, Edward E. Rothberg, and Michael E. Wolf. The cache performance and optimizations of blocked algorithms. In *Proceedings of the Fourth International Conference on Architectural Support for Programming Languages and Operating Systems*, ASPLOS IV, page 63–74, New York, NY, USA, 1991. Association for Computing Machinery.
- [217] Michael E Wolf and Monica S Lam. A loop transformation theory and an algorithm to maximize parallelism. *IEEE Transactions on Parallel & Distributed Systems*, 2(04):452–471, 1991.
- [218] Paul Feautrier. Dataflow analysis of array and scalar references. *International Journal of Parallel Programming*, 20:23–53, 1991.
- [219] Vivek Sarkar and Guang R. Gao. Optimization of array accesses by collective loop transformations. In *Proceedings of the 5th International Conference on Supercomputing*, ICS '91, page 194–205, New York, NY, USA, 1991. Association for Computing Machinery.
- [220] Mary W Hall, Ken Kennedy, and Kathryn S McKinley. Interprocedural transformations for parallel code generation. In *Proceedings of the 1991 ACM/IEEE conference on Supercomputing*, pages 424–434, 1991.
- [221] Gina Goff, Ken Kennedy, and Chau-Wen Tseng. Practical dependence testing. *ACM SIGPLAN Notices*, 26(6):15–29, 1991.
- [222] Scott McFarling. Procedure merging with instruction caches. *ACM SIGPLAN Notices*, 26(6):71–79, 1991.
- [223] Keith D Cooper, Mary W Hall, and Linda Torczon. An experiment with inline substitution. *Software: Practice and Experience*, 21(6):581–601, 1991.
- [224] Michael Weiss. The transitive closure of control dependence: The iterated join. ACM Letters on Programming Languages and Systems (LOPLAS), 1(2):178–190, 1992.
- [225] Joseph Hummel, Laurie J. Hendren, and Alexandru Nicolau. A general data dependence test for dynamic, pointer-based data structures. In *Proceedings of the ACM SIGPLAN 1994 Conference on Programming Language Design and Implementation*, PLDI '94, page 218–229, New York, NY, USA, 1994. Association for Computing Machinery.
- [226] Reinhard v. Hanxleden and Ken Kennedy. Relaxing simd control flow constraints using loop transformations. *SIGPLAN Not.*, 27(7):188–199, July 1992.
- [227] Rajiv Gupta. Generalized dominators and post-dominators. In *Proceedings of the 19th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '92, page 246–257, New York, NY, USA, 1992. Association for Computing Machinery.
- [228] Yong-fong Lee and Barbara G Ryder. A comprehensive approach to parallel data flow analysis. In *Proceedings of the 6th International Conference on Supercomputing*, pages 236–247, 1992.
- [229] S. Tjiang, M. Wolf, M. Lam, K. Pieper, and J. Hennessy. Integrating scalar optimization and parallelization. In Utpal Banerjee, David Gelernter, Alex Nicolau, and David Padua, editors, *Languages and Compilers for Parallel Computing*, pages 137–151, Berlin, Heidelberg, 1992. Springer Berlin Heidelberg.
- [230] Steven W. K. Tjiang and John L. Hennessy. Sharlit—a tool for building optimizers. *SIGPLAN Not.*, 27(7):82–93, July 1992.
- [231] Dhananjay M Dhamdhere, Barry K Rosen, and F Kenneth Zadeck. How to analyze large programs efficiently and informatively. In *Proceedings of the ACM SIGPLAN 1992 conference on Programming language design and implementation*, pages 212–223, 1992.
- [232] S. A. Mahlke, W. Y. Chen, J. C. Gyllenhaal, and W.-M. W. Hwu. Compiler code transformations for

- superscalar-based high performance systems. In *Proceedings of the 1992 ACM/IEEE Conference on Supercomputing*, Supercomputing '92, page 808–817, Washington, DC, USA, 1992. IEEE Computer Society Press.
- [233] Christopher W. Fraser, David R. Hanson, and Todd A. Proebsting. Engineering a simple, efficient code-generator generator. *ACM Lett. Program. Lang. Syst.*, 1(3):213–226, September 1992.
- [234] Paul Feautrier. Some efficient solutions to the affine scheduling problem. i. one-dimensional time. *International journal of parallel programming*, 21:313–347, 1992.
- [235] Frank Mueller and David B. Whalley. Avoiding unconditional jumps by code replication. In *Proceedings of the ACM SIGPLAN 1992 Conference on Programming Language Design and Implementation*, PLDI '92, page 322–330, New York, NY, USA, 1992. Association for Computing Machinery.
- [236] Preston Briggs, Keith D. Cooper, and Linda Torczon. Rematerialization. *SIGPLAN Not.*, 27(7):311–321, July 1992.
- [237] Preston Briggs, Keith D Cooper, and Linda Torczon. Coloring register pairs. *ACM Letters on Programming Languages and Systems (LOPLAS)*, 1(1):3–13, 1992.
- [238] Ken Kennedy and Kathryn S McKinley. Optimizing for parallelism and data locality. In *Proceedings* of the 6th international conference on Supercomputing, pages 323–334, 1992.
- [239] Ken Kennedy and Kathryn S McKinley. Maximizing loop parallelism and improving data locality via loop fusion and distribution. In *International Workshop on Languages and Compilers for Parallel Computing*, pages 301–320. Springer, 1993.
- [240] Michael Wolfe. Beyond induction variables. SIGPLAN Not., 27(7):162-174, July 1992.
- [241] Mary W. Hall and Ken Kennedy. Efficient call graph analysis. *ACM Lett. Program. Lang. Syst.*, 1(3):227–242, September 1992.
- [242] William Landi and Barbara G. Ryder. A safe approximate algorithm for interprocedural aliasing. In *Proceedings of the ACM SIGPLAN 1992 Conference on Programming Language Design and Implementation*, PLDI '92, page 235–248, New York, NY, USA, 1992. Association for Computing Machinery.
- [243] Keith D. Cooper, Mary W. Hall, and Linda Torczon. Unexpected side effects of inline substitution: a case study. *ACM Lett. Program. Lang. Syst.*, 1(1):22–32, March 1992.
- [244] William Pugh and David Wonnacott. Eliminating false data dependences using the omega test. *SIG-PLAN Not.*, 27(7):140–151, July 1992.
- [245] Jens Knoop, Oliver Rüthing, and Bernhard Steffen. Lazy code motion. *SIGPLAN Not.*, 27(7):224–234, July 1992.
- [246] Anne Rogers and Kai Li. Software support for speculative loads. In *Proceedings of the Fifth International Conference on Architectural Support for Programming Languages and Operating Systems*, ASPLOS V, page 38–50, New York, NY, USA, 1992. Association for Computing Machinery.
- [247] William Pugh. A practical algorithm for exact array dependence analysis. *Commun. ACM*, 35(8):102–114, August 1992.
- [248] Zhiyuan Li. Array privatization for parallel execution of loops. In *Proceedings of the 6th International Conference on Supercomputing*, ICS '92, page 313–322, New York, NY, USA, 1992. Association for Computing Machinery.
- [249] Michael Wolfe, Chau-Wen Tseng, et al. The power test for data dependence. *IEEE Transactions on Parallel and Distributed Systems*, 3(5):591–601, 1992.
- [250] Torbjörn Granlund and Richard Kenner. Eliminating branches using a superoptimizer and the gnu c compiler. In *Proceedings of the ACM SIGPLAN 1992 conference on Programming language design and implementation*, pages 341–352, 1992.
- [251] Todd C. Mowry, Monica S. Lam, and Anoop Gupta. Design and evaluation of a compiler algorithm

- for prefetching. SIGPLAN Not., 27(9):62-73, September 1992.
- [252] D. Maydan, S. Amarsinghe, and M. Lam. Data dependence and data-flow analysis of arrays. In Utpal Banerjee, David Gelernter, Alex Nicolau, and David Padua, editors, *Languages and Compilers for Parallel Computing*, pages 434–448, Berlin, Heidelberg, 1993. Springer Berlin Heidelberg.
- [253] A. J. C. Bik and H. A. G. Wijshoff. Advanced compiler optimizations for sparse computations. In *Proceedings of the 1993 ACM/IEEE Conference on Supercomputing*, Supercomputing '93, page 430–439, New York, NY, USA, 1993. Association for Computing Machinery.
- [254] Wei Li and Keshav Pingali. Access normalization: loop restructuring for numa computers. *ACM Trans. Comput. Syst.*, 11(4):353–375, November 1993.
- [255] Owen Kaser, C. R. Ramakrishnan, and Shaunak Pawagi. On the conversion of indirect to direct recursion. *ACM Lett. Program. Lang. Syst.*, 2(1–4):151–164, March 1993.
- [256] Evelyn Duesterwald, Rajiv Gupta, and Mary Lou Soffa. A practical data flow framework for array reference analysis and its use in optimizations. In *Proceedings of the ACM SIGPLAN 1993 Conference on Programming Language Design and Implementation*, PLDI '93, page 68–77, New York, NY, USA, 1993. Association for Computing Machinery.
- [257] David A. Barrett and Benjamin G. Zorn. Using lifetime predictors to improve memory allocation performance. *SIGPLAN Not.*, 28(6):187–196, June 1993.
- [258] M. Robert Ito and A. Zaafrani. Data flow analysis for parallel programs. In *Proceedings of the 1993 ACM Conference on Computer Science*, CSC '93, page 318–325, New York, NY, USA, 1993. Association for Computing Machinery.
- [259] Richard Johnson and Keshav Pingali. Dependence-based program analysis. In *Proceedings of the ACM SIGPLAN 1993 Conference on Programming Language Design and Implementation*, PLDI '93, page 78–89, New York, NY, USA, 1993. Association for Computing Machinery.
- [260] Karl-Heinz Drechsler and Manfred P Stadel. A variation of knoop, rüthing, and steffen's lazy code motion. *ACM SIGPLAN Notices*, 28(5):29–38, 1993.
- [261] Jens Knoop. Lazy strength reduction. *International Journal of Programming Languages*, 1(1):71–91, 1993.
- [262] G. Gao, R. Olsen, V. Sarkar, and R. Thekkath. Collective loop fusion for array contraction. In Utpal Banerjee, David Gelernter, Alex Nicolau, and David Padua, editors, *Languages and Compilers for Parallel Computing*, pages 281–295, Berlin, Heidelberg, 1993. Springer Berlin Heidelberg.
- [263] Robert Metzger and Sean Stroud. Interprocedural constant propagation: an empirical study. *ACM Lett. Program. Lang. Syst.*, 2(1–4):213–232, March 1993.
- [264] Mohammad R Haghighat and Constantine D Polychronopoulos. Symbolic analysis: A basis for parallelization, optimization, and scheduling of programs. In *International Workshop on Languages and Compilers for Parallel Computing*, pages 567–585. Springer, 1993.
- [265] Dror E. Maydan, Saman P. Amarasinghe, and Monica S. Lam. Array-data flow analysis and its use in array privatization. In *Proceedings of the 20th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '93, page 2–15, New York, NY, USA, 1993. Association for Computing Machinery.
- [266] Siddhartha Chatterjee, John R Gilbert, Robert Schreiber, and Shang-Hua Teng. Automatic array alignment in data-parallel programs. In *Proceedings of the 20th ACM SIGPLAN-SIGACT symposium on Principles of programming languages*, pages 16–28, 1993.
- [267] Jennifer M Anderson and Monica S Lam. Global optimizations for parallelism and locality on scalable parallel machines. *ACM Sigplan Notices*, 28(6):112–125, 1993.
- [268] B. Ramakrishna Rau and Joseph A. Fisher. Instruction-Level Parallel Processing: History, Overview,

- and Perspective, pages 9-50. Springer US, Boston, MA, 1993.
- [269] Amitabh Srivastava. A practical system for intermodule code optimization at link-time. *Journal of programming Languages*, 1(1):1–18, 1993.
- [270] James R Larus. Loop-level parallelism in numeric and symbolic programs. *IEEE Transactions on Parallel and Distributed Systems*, 4(7):812–826, 1993.
- [271] Susan L. Graham, Steven Lucco, and Oliver Sharp. Orchestrating interactions among parallel computations. *SIGPLAN Not.*, 28(6):100–111, June 1993.
- [272] Wen-Mei W Hwu, Scott A Mahlke, William Y Chen, Pohua P Chang, Nancy J Warter, Roger A Bringmann, Roland G Ouellette, Richard E Hank, Tokuzo Kiyohara, Grant E Haab, et al. The superblock: an effective technique for vliw and superscalar compilation. *The Journal of Supercomputing*, 7(1-2):229–248, 1993.
- [273] Rajiv Gupta. Optimizing array bound checks using flow analysis. *ACM Lett. Program. Lang. Syst.*, 2(1–4):135–150, March 1993.
- [274] Shlomit S. Pinter. Register allocation with instruction scheduling. *SIGPLAN Not.*, 28(6):248–257, June 1993.
- [275] Keith D Cooper, Mary W Hall, and Ken Kennedy. A methodology for procedure cloning. *Computer Languages*, 19(2):105–117, 1993.
- [276] Jong-Deok Choi, Michael Burke, and Paul Carini. Efficient flow-sensitive interprocedural computation of pointer-induced aliases and side effects. In *Proceedings of the 20th ACM SIGPLAN-SIGACT symposium on Principles of programming languages*, pages 232–245, 1993.
- [277] Peng Tu and David Padua. Automatic array privatization. In *International Workshop on Languages* and Compilers for Parallel Computing, pages 500–521. Springer, 1993.
- [278] William Landi, Barbara G Ryder, and Sean Zhang. Interprocedural modification side effect analysis with pointer aliasing. *ACM SIGPLAN Notices*, 28(6):56–67, 1993.
- [279] Thomas Ball and James R Larus. Branch prediction for free. *ACM SIGPLAN Notices*, 28(6):300–313, 1993.
- [280] William Blume and Rudolf Eigenmann. The range test: a dependence test for symbolic, non-linear expressions. In *Proceedings of the 1994 ACM/IEEE Conference on Supercomputing*, Supercomputing '94, page 528–537, Washington, DC, USA, 1994. IEEE Computer Society Press.
- [281] Amitabh Srivastava and David W. Wall. Link-time optimization of address calculation on a 64-bit architecture. In *Proceedings of the ACM SIGPLAN 1994 Conference on Programming Language Design and Implementation*, PLDI '94, page 49–60, New York, NY, USA, 1994. Association for Computing Machinery.
- [282] Preston Briggs and Keith D Cooper. Effective partial redundancy elimination. *ACM SIGPLAN Notices*, 29(6):159–170, 1994.
- [283] Jens Knoop, Oliver Rüthing, and Bernhard Steffen. Partial dead code elimination. *ACM Sigplan Notices*, 29(6):147–158, 1994.
- [284] Uma Mahadevan and Sridhar Ramakrishnan. Instruction scheduling over regions: A framework for scheduling across basic blocks. In Peter A. Fritzson, editor, *Compiler Construction*, pages 419–434, Berlin, Heidelberg, 1994. Springer Berlin Heidelberg.
- [285] Daniel Weise, Roger F. Crew, Michael Ernst, and Bjarne Steensgaard. Value dependence graphs: representation without taxation. In *Proceedings of the 21st ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '94, page 297–310, New York, NY, USA, 1994. Association for Computing Machinery.
- [286] Steven M. Kurlander and Charles N. Fischer. Zero-cost range splitting. SIGPLAN Not., 29(6):257–265,

- June 1994.
- [287] Brad Calder and Dirk Grunwald. Reducing branch costs via branch alignment. *SIGOPS Oper. Syst. Rev.*, 28(5):242–251, November 1994.
- [288] Steve Carr and Ken Kennedy. Improving the ratio of memory operations to floating-point operations in loops. *ACM Trans. Program. Lang. Syst.*, 16(6):1768–1810, November 1994.
- [289] Eric Amiel, Olivier Gruber, and Eric Simon. Optimizing multi-method dispatch using compressed dispatch tables. *SIGPLAN Not.*, 29(10):244–258, October 1994.
- [290] Cliff Young and Michael D. Smith. Improving the accuracy of static branch prediction using branch correlation. *SIGOPS Oper. Syst. Rev.*, 28(5):232–241, November 1994.
- [291] David F. Bacon, Jyh-Herng Chow, Dz-Ching Ju, Kalyan Muthukumar, and Vivek Sarkar. A compiler framework for restructuring data declarations to enhance cache and TLB effectiveness. In John E. Botsford, Ann Gawman, W. Morven Gentleman, Evelyn Kidd, Kelly A. Lyons, Jacob Slonim, and J. Howard Johnson, editors, *Proceedings of the 1994 Conference of the Centre for Advanced Studies on Collaborative Research, October 31 November 3, 1994*, *Toronto, Ontario, Canada*, page 3. IBM, 1994.
- [292] J. Torrellas, H.S. Lam, and J.L. Hennessy. False sharing and spatial locality in multiprocessor caches. *IEEE Transactions on Computers*, 43(6):651–663, 1994.
- [293] Peter W Markstein, Victoria Markstein, and F Kenneth Zadeck. Reassociation and strength reduction. *Optimization in Compilers*, 1994.
- [294] Siddhartha Chatterjee, John R Gilbert, and Robert Schreiber. The alignment-distribution graph. In Languages and Compilers for Parallel Computing: 6th International Workshop Portland, Oregon, USA, August 12–14, 1993 Proceedings 6, pages 234–252. Springer, 1994.
- [295] Preston Briggs, Keith D. Cooper, and Linda Torczon. Improvements to graph coloring register allocation. *ACM Trans. Program. Lang. Syst.*, 16(3):428–455, May 1994.
- [296] Maryam Emami, Rakesh Ghiya, and Laurie J. Hendren. Context-sensitive interprocedural points-to analysis in the presence of function pointers. In *Proceedings of the ACM SIGPLAN 1994 Conference on Programming Language Design and Implementation*, PLDI '94, page 242–256, New York, NY, USA, 1994. Association for Computing Machinery.
- [297] Alain Deutsch. Interprocedural may-alias analysis for pointers: beyond k-limiting. In *Proceedings of the ACM SIGPLAN 1994 Conference on Programming Language Design and Implementation*, PLDI '94, page 230–241, New York, NY, USA, 1994. Association for Computing Machinery.
- [298] Steve Carr and Ken Kennedy. Scalar replacement in the presence of conditional control flow. *Softw. Pract. Exper.*, 24(1):51–77, January 1994.