

# MathWorks Compiler Course – Day 9

- Interpreter

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- Interpreter
  - Source interpretation

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- Interpreter
  - Source interpretation
  - Tree interpretation

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- Interpreter
  - Source interpretation
  - Tree interpretation
  - Making P-code
    - From shift/reduce sequence
    - From tree

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- Interpreter
  - Source interpretation
  - Tree Interpretation
  - Making P-code
  - Interpreting P-Code

# MathWorks Compiler Course – Day 9

- Interpreter
- JIT

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- Interpreter
- JIT
  - Pcode driven
  - Directly from source

# MathWorks Compiler Course – Day 9

- Interpreter
- JIT
- Hybrid JIT-Interpreter
  - Switches between machine code and Pcode
  - Compile time vs. execution efficiency



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- Interpreter
- JIT
- Hybrid JIT-Interpreter
- Compiler
  - Module at a time
  - Linkers

# MathWorks Compiler Course – Day 9

- Interpreter
- JIT
- Hybrid JIT-Interpreter
- Compiler
- Code Optimization

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- Code Optimization
  - Specifying meaning

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  - “as-if” rule

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  - Cache aware

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- Code Optimization
  - Specifying meaning
  - “as-if” rule
  - Cache aware
  - Local optimization
    - Constant folding
    - Peephole optimization
    - Identities

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- Code Optimization
  - Specifying meaning
  - “as-if” rule
  - Cache aware
  - Local optimization
  - Non-local optimization
    - Common subexpression elimination
    - Hoisting

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- Code Optimization
  - Specifying meaning
  - “as-if” rule
  - Cache aware
  - Local optimization
  - Non-local optimization
  - Heavy-duty optimization
    - Flow analysis
    - Register allocation