


## McLab Tutorial

[www.sable.mcgill.ca/mclab](http://www.sable.mcgill.ca/mclab)



### Part 8 – Wrap Up

- Summary
- Ongoing and Future Work
- Further Sources

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## Tutorial Summary

- MATLAB is a popular language and an important PLDI research area.
- McLab aims to provide tools to support such research.
  - Front-end: extensible scanner, parser, attributes
    - example extension: AspectMatlab
  - IR and analysis framework:
    - two levels of IR, high-level McAST and lower-level McLAST
    - structure-based flow analysis framework
  - Back-ends: MATLAB, McVM with McJIT and McFor

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## Ongoing and Future Work

- MATLAB refactoring tools:
  - code cleanup
  - refactoring towards Fortran generation
  - include static call graph and interprocedural analysis framework
- MATLAB extensions:
  - AspectMatlab
  - Typing Aspects

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## Back-end (McVM/McJIT)

- On-stack replacement
- Dynamic optimizations – correct choice of inlining and basic block positioning.
- Optimizations for multicore systems
- Compilation to GPUs and mixed CPU/GPU systems
- Portability and performance across multiple CPU and GPU families

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## Where to look for more info

- [www.sable.mcgill.ca](http://www.sable.mcgill.ca)
  - /software
    - currently have McVM and AspectMatlab on the web site
    - can ask for McLab front-end and analysis framework, we will also add to the web site soon
  - /publications
    - papers and thesis, in particular
    - MetaLexer (Andrew Casey)
    - McLab Front-end and Analysis Framework (Jesse Doherty)
    - McVM (Maxime Chevalier-Boisvert)
    - McFor (1<sup>st</sup> version Jun Li, 2<sup>nd</sup> version Anton Dubrau)
    - tutorials, starting with this one

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## Keep in Touch

- main web site:  
<http://www.sable.mcgill.ca/mclab>
- mailing list:  
[mclab-list@sable.mcgill.ca](mailto:mclab-list@sable.mcgill.ca)
- bug reports:  
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