Productive Programming with MATLAB®

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MathWorks
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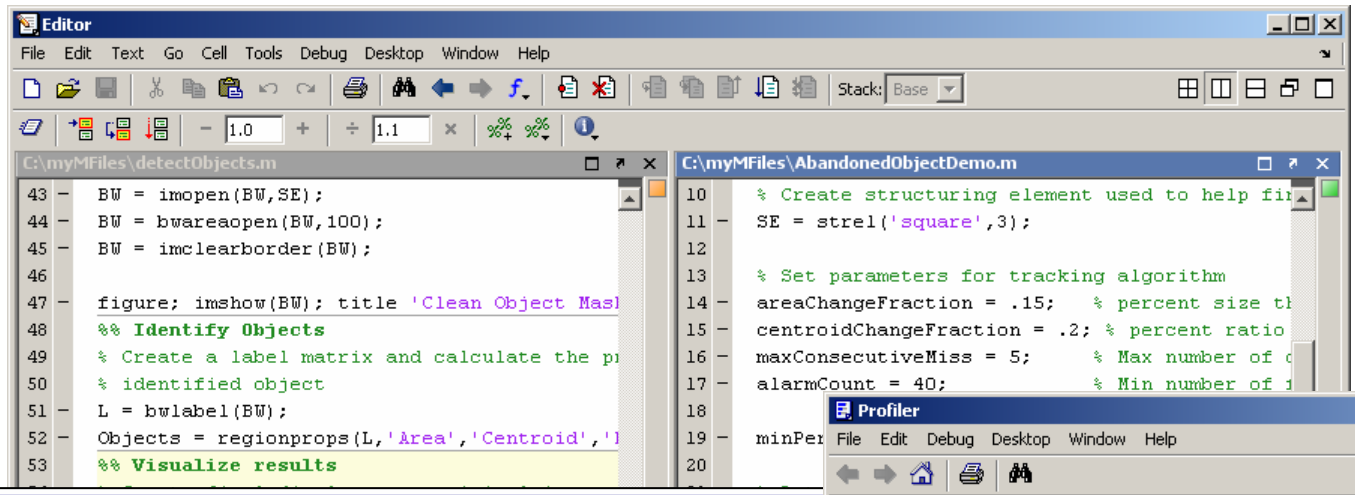
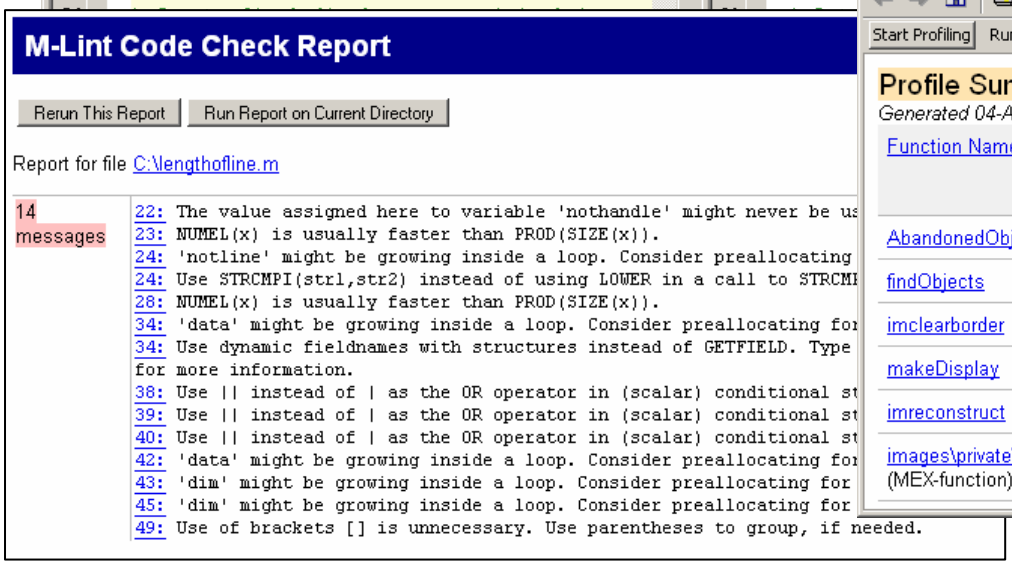
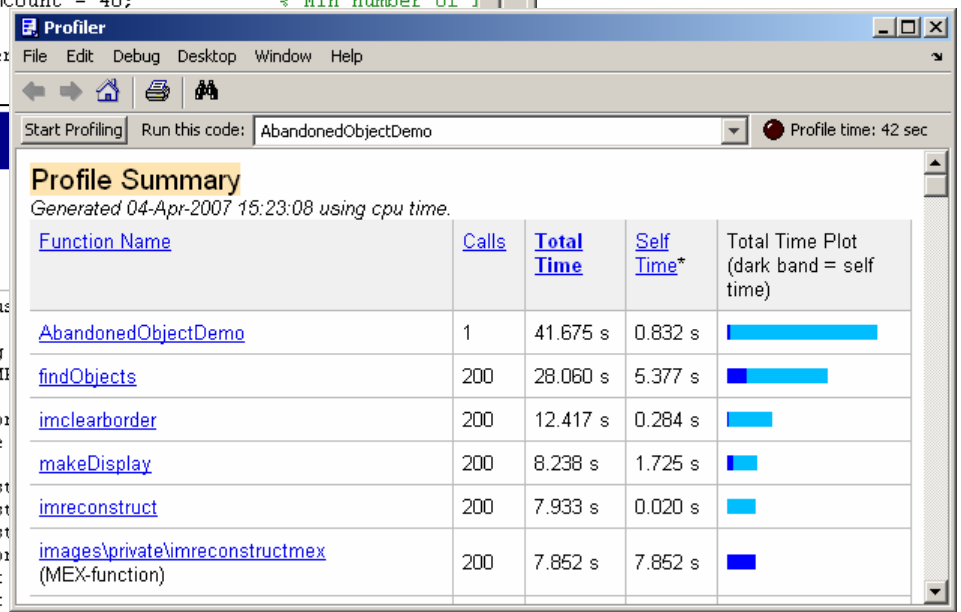
Development Challenges

- **Developing** working algorithms
- Supporting and **maintaining** your algorithms
- **Optimizing** quality and performance

MATLAB® for Algorithm Development







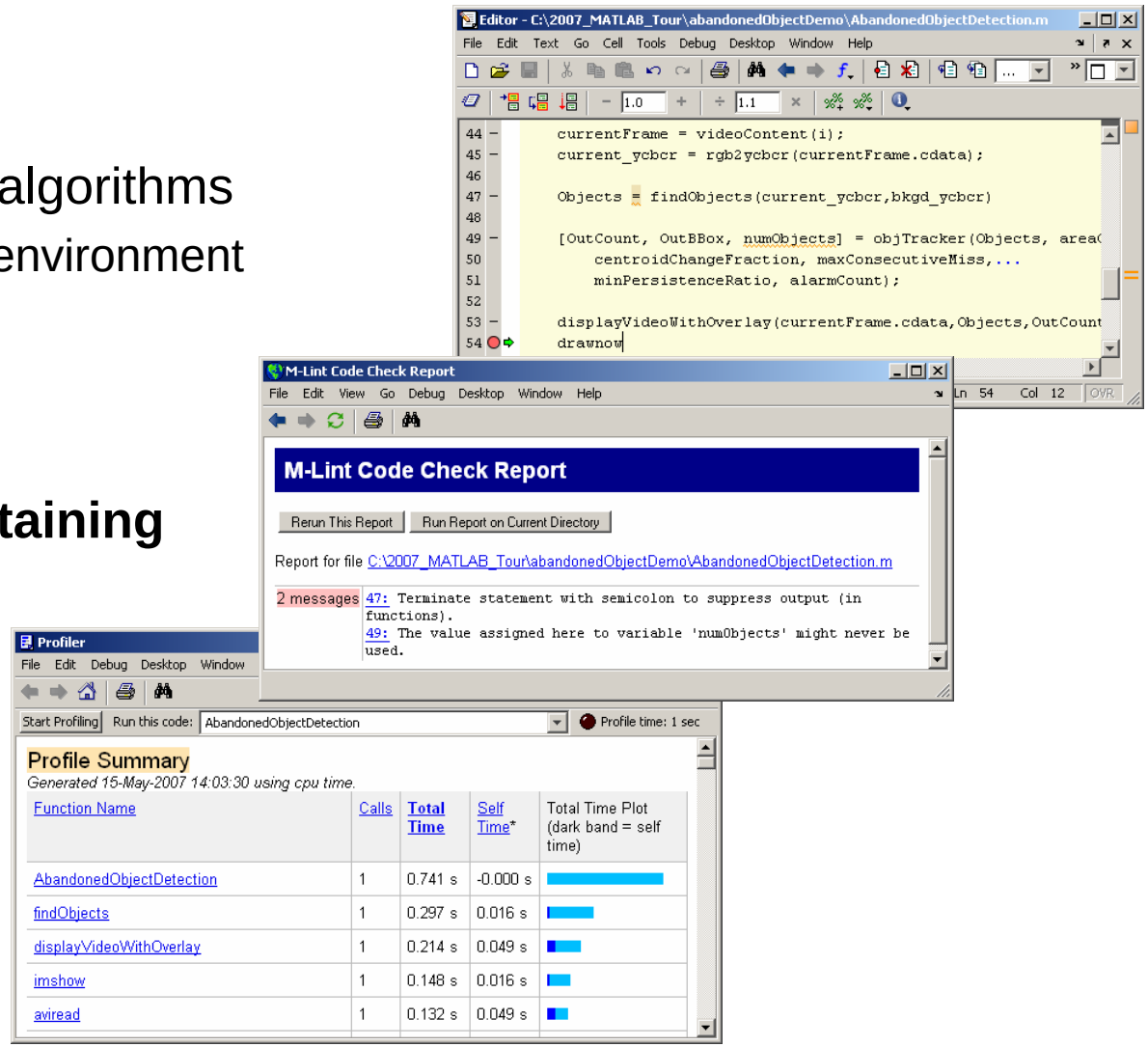
Demonstration:
Abandoned Object Detection

- Description
  - Detect abandoned objects on a train platform

- Approach
  - Use video surveillance to capture the scene
  - Develop an algorithm to:
    - Identify objects on platform
    - Track the objects over successive video frames
    - Determine which objects are abandoned

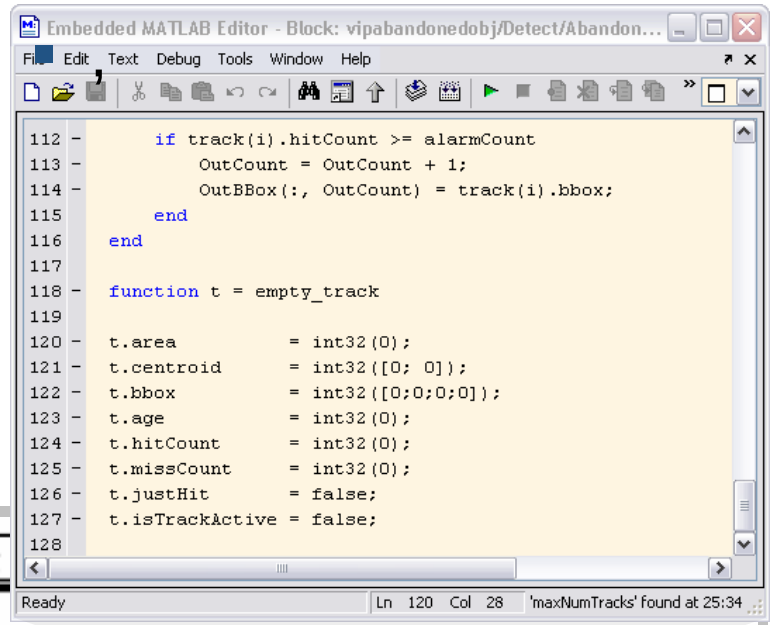
Demonstration Summary

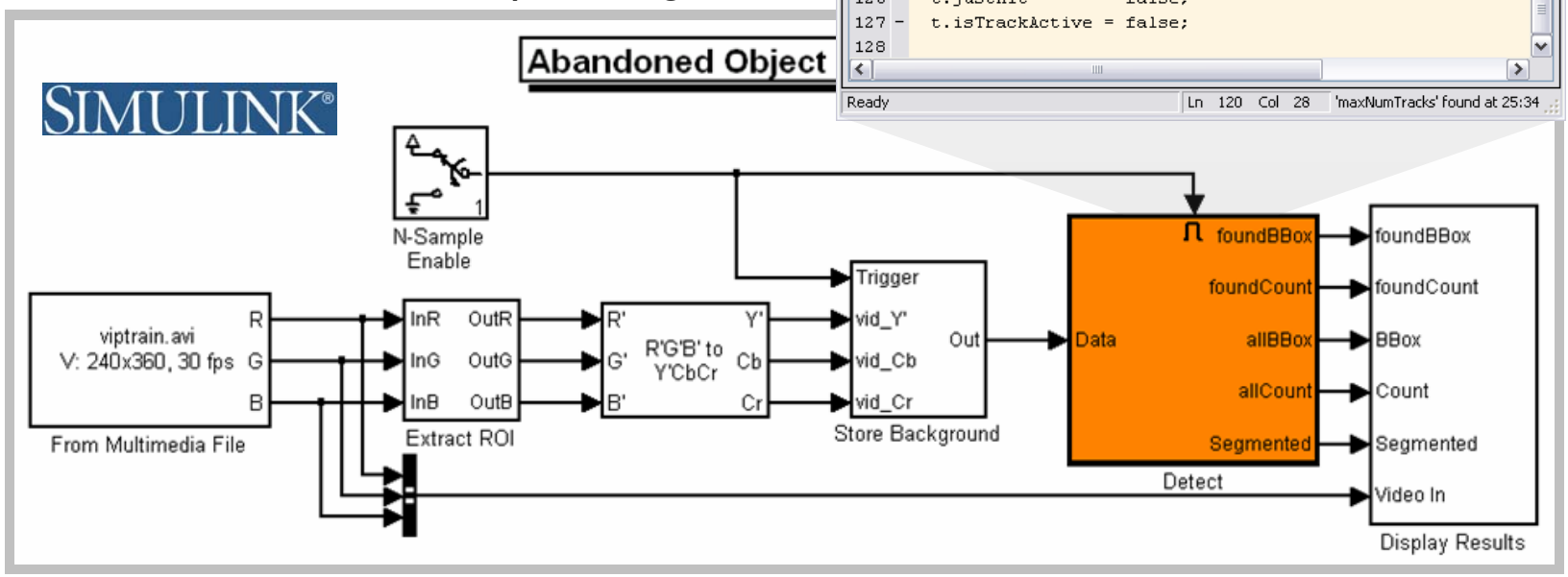
- **Developing** working algorithms
  - MATLAB® desktop environment
    - Editor / debugger
    - Directory reports
- Supporting and **maintaining** your algorithms
  - M-Lint
- **Optimizing** quality and performance
  - Profiler



Merging Algorithm Development and Embedded System Design

- MATLAB
  - Fixed Point Toolbox
  - Embedded MATLAB
- Simulink® family of products
  - Automatic code generation
  - Hardware in the loop testing





Broadcom Develops Low-Cost Semiconductor Product with MathWorks Tools

The Challenge

To develop a low-cost semiconductor product based on 3G standards that handset manufacturers could combine with chips based on 2G standards

The Solution

Use MathWorks tools to develop algorithms and model the chip subsystems

The Results

- Chip saves manufacturers millions of dollars
- Models reused for production release
- Development time cut in half

SPINNERchip add-on WCDMA baseband processor

"MATLAB® is an ideal environment for developing and understanding our algorithms. Simulink® integrates well with MATLAB and lets us produce a design that looks very similar to what we end up with ultimately in hardware."

Francis Swarts, Broadcom

Questions?