Introduction to MATLAB

Andy Thé
MathWorks Product Marketing Manager
What is MATLAB?

- High-level language
- Interactive development environment
- Used for:
  - Numerical computation
  - Data analysis and visualization
  - Algorithm development and programming
  - Application development and deployment
Technical Computing Workflow

Access
- Files
- Software
- Hardware

Explore & Discover
- Data Analysis & Modeling
- Algorithm Development
- Application Development

Share
- Reporting and Documentation
- Outputs for Design
- Deployment

Automate

Code & Applications

MATLAB, Excel, C/C++, Java, .dll
Demo: Intruder Detection System

- **Goal:** Explore images to create and share a intruder detection algorithm

- **Approach:**
  - Develop using static images
  - Document with a published report
  - Extend to live webcam video
Demo: Intruder Detection System

Access
- Files
- Software
- Hardware

Explore & Discover
- Data Analysis & Modeling
- Algorithm Development
- Application Development

Share
- Reporting and Documentation
- Outputs for Design
- Deployment

Automate

Products Used
- MATLAB
- Image Processing Toolbox

Code & Applications

MATLAB
Excel
.NET
C/C++
Java
.dll

Example Code:
```matlab
for k=1:max
    x = fft(dat)
    y = 20*log1
```
Learn More: MATLAB

www.mathworks.com/matlab

www.mathworks.com/matlabcentral
Learn More: Image Processing Toolbox

www.mathworks.com/products/image