



# GLOBAL LEADER INTERNSHIP



## INTERNATIONAL ELECTRONIC MACHINES CORPORATION

**Number of Positions:** 3  
**Length of Training:** 12 to 18 months  
**Location(s):** Troy, New York  
**Compensation:** \$12-\$14/hour  
 Depending on experience  
**Ideal Start Date:** Immediately  
**Website:** www.iem.net

## INTERNSHIP DESCRIPTION

**Department/ Company Area/ Field of Training:** Software Engineering Department

**Trainee's Title:** Embedded Systems Engineer

### Intern Main Tasks/Responsibilities:

You will have the opportunity to engage in hands-on embedded design and implementation doing embedded programming, and system integration of machine vision and sensor systems using single board computers and discrete hardware components. Projects include new product design and on board software programming for wireless sensors, system design, and component specifications.

### Key Objectives of Training:

IEM offers a dynamic atmosphere that would provide a broad range of training opportunities depending on the candidate's interest. Major training objective would concern utilization of programming skills in a hands on environment.

### Tasks/Activities Associated with Training:

Programming; Hardware Design; Analog Circuit Interfacing; Schematic Capture; and Board Layout. Position will likely include some hands-on work in labs, industrial, and outside field environments. An ability to occasionally travel to customer sites is preferred.

## COMPANY INFORMATION



IEM is an electronics firm specializing in the development, manufacture, and marketing of instrumentation and imaging systems.

We specialize in embedded systems development ranging from custom sensors, to development of leading edge imaging products such as digital cameras.

## APPLICANT REQUIREMENTS

### Academic Background Professional/Practical Experience:

Bachelor's Degree Preferred; Two years related work or equivalent internship/coop experience demonstrated by completed embedded projects.

### Skills/Knowledge/Language Proficiencies:

#### REQUIRED:

- Computer Science or Electrical Engineering student
- Must be fluent in English
- Quick learner, highly motivated, self starter, and eager to learn
- Excellent Programming Skills (i.e. C/C++/C#, VB, etc. under Windows .Net framework)
- Hands on experience with embedded software coding and debugging
- Knowledge of real-time embedded operating systems
- Hands on digital system, single board computers, and sensor integration experience
- Desire to design, prototype, build, and test new products towards their commercialization
- Engineering Analysis skills (e.g. for data collection and system operation validation)

#### DESIRED:

- Familiarity with the .NET framework (prefer VB.NET) and Visual Studio is a definite plus
- Simple hardware design: microcontrollers, analog circuits interfacing, schematic capture, and board layout
- Familiar with basic Software Engineering design principles
- Linux or embedded Linux, MATLAB, and Labview working experience
- Capable of using hardware development and debug tools including emulators, oscilloscopes, logic analyzers, multi-meters, and other lab test equipment
- Familiarity with image processing or machine vision algorithms
- TCP/IP programming through .NET or raw sockets
- Wireless and RF experience (including WIFI security and data compression)
- Ability to select and integrate real time control packages (perhaps embedded Linux) with sensors, navigational control, mapping software, etc.
- Experience with navigational sensor technology (laser range finders, GPS, inertial guidance, sonar) is a plus
- Simple hardware design: microcontrollers, analog circuits interfacing, schematic capture, and board layout
- Embedded image processing: camera interface, machine vision systems, basic image processing algorithms working experience
- Able to work in all environments: individual contributor or team, on site, outside doing installations, etc.
- Excellent record keeping and documentation keeping skills: specification creation, test output documentation, design documentation, final reports, block diagrams, simple schematics, etc.