

Opportunities:

- Cell phones
- Net books
- Robotics
- Game Consoles
- Defense Systems
- Medical devices

Key Skills:

- C/C++
- Debugging
 - o Comes with practice – participate in as many coding projects as possible!
- Meaningful Test Cases
 - o Nominal Flow
 - o Error Conditions
 - o Boundary Conditions
- Pointer manipulation
- Memory management
 - o Heap vs. Stack
 - o Pass-by-value vs. Pass-by-reference
 - o malloc/free & new/delete
 - o Cache – L1, L2, Instruction, Data, Cache coherency
- Data structures: linked lists, hash tables, binary trees
 - o Insert or remove nodes from these structures
- Multi-threaded Systems
 - o Using semaphores to protect data or signal events across threads
 - o What a scheduler is and how it works
- Interrupt Service Routines
- Bitwise manipulation
 - o Bitmasks using shift operators, bitwise &, bitwise |
- Common Registers and Stored Values
 - o Stack Pointer
 - o Overflow bit
 - o Thread context

Key CU Coursework:

- CSCI 1300 - Computer Science 1: Programming
- CSCI 2270 - Computer Science 2: Data Structures
- CSCI 2400 - Computer Systems
- CSCI 4593 - Computer Organization
- ECEN2120 - Computers as Components
- ECEN 4623 - Real-Time Embedded Systems*
- ECEN 4613 - Embedded System Design*
- ECEN 4633 - Hybrid Embedded Systems*

* These senior-level courses combine for a certificate in embedded systems.