

# CANDICE IP

## SOFTWARE/HARDWARE PORTFOLIO 2018



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[GIT.IO/CANDICEI](https://git.io/candicei)



[CANDICE-IP](#)



[GOO.GL/4WNDGM](https://goo.gl/4WNDGM)



**< 1,000 LOC**

- C++
- VHDL
- Assembly
- Fortran



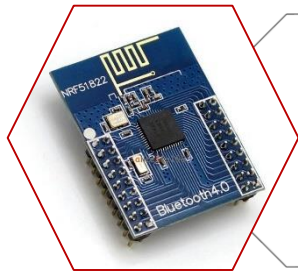
**5,000 LOC**

- Python
- RobotC
- Java



**> 10,000 LOC**

- C
- MATLAB
- LabVIEW

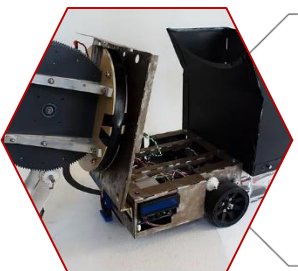


### Alpine Network Sensor

Programmed a ARM Cortex M0 in a nRF51822 Bluetooth Microcontroller for temperature and humidity data logging.

Language: C

Other: UART communication, I2C protocol, PuTTY, Altium, energy budget analysis, Raspberry Pi

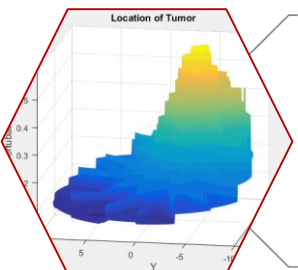


### Autonomous Robot for Object Retrieval

Designed the hardware for a line-following and object detection and retrieval robot and programmed with a modified Arduino. [goo.gl/7Vdaqm](https://goo.gl/7Vdaqm)

Language: C

Other: PID control, finite-state machine, IR circuits, H-bridge circuits, soldering, laser-cutting, 3D printing



### Electrical Impedance Tomography Imaging

Implemented finite element analysis techniques in to solve the mathematical Greens Function of a boundary condition problem applicable to EIT. [git.io/vxP3h](https://git.io/vxP3h)

Language: MATLAB

Other: Finite element analysis, data visualization



Language: C++, C, LabVIEW, MATLAB

# VEX Robots

Language: RobotC

## Analysis on Time-Series Data from Optical Traps

Language: MATLAB

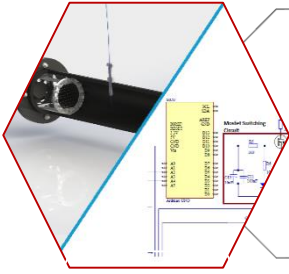
## Image Processing and Auto-Alignment

Language: LabVIEW, MATLAB

## Python Simulations and Animations

Language: Python

2/3



## Thermal Time-of Flight Flow Meter

Used thermocouples and an Arduino to obtain temperature data along pipe to determine helium flow rate within the pipe. Data was processed in MATLAB.

Language: C, MATLAB

Other: Hardware and software noise reduction, real-time data analysis