**EasyGA Project Overview**

- Build open-source AI software to apply in real time
- Build multiple AI test platforms.

**PHASE 1: GA ROBOT**

- Prior Research in Genetic Algorithm to Search the search space for the most optimal hover control.

**PHASE 2: Data Driven “Machine Learning” Control Technology**

- A one degree of freedom robot that is optimized using a P.I.D controller. This system allows us to apply a GANN “Genetic Artificial Neural Network” to optimize our control network and compare it against a simple P.I.D

**EASYGA SOFTWARE**

- Open-source software that makes genetic algorithms and neural networks easy and useable for anyone.

**EasyGA is a python package designed to provide an easy-to-use Genetic Algorithm.**

- The package is designed to work right out of the box, while also allowing the user to customize features as they see fit.

- So easy, that your first genetic algorithm can be made in 5 lines of code. Seriously 5 lines of code.

- Multiple examples to use when your first getting started.

- No need to know every part of the algorithm. Just change what your need or know.

**Download Python**

- EasyGA runs on Python 3.x.
- You don’t have to have python installed, you can install it here: https://www.python.org/downloads/

**Pip installing**

- Install on your development using pip
- pip install easyga
- Install on your development using python version 3.7+
- pip install easyga
- Once installed you can do the following in the terminal to install EasyGA:

```
$ pip install EasyGA
```

**Importing EasyGA**

- Importing easyga into your py file is as easy as adding the following line of code to the top of the file.

```
import easyga
```

**Appling GA to Small Autonomous Vehicle**

- Phase two of the prototype is controls of multiple small autonomous vehicles.

**Simulated run of 5 trails with 10 chromosomes. Population of 40 and 100 generations.**

**Prior Research in Genetic Algorithm to Search the search space for the most optimal hover control.**

- The one DOF device is an evolving altitude controller. The device is made up of an EDF fan, the USRM, a carbon fiber tube, assorted wiring, and two 3D printed parts, the intermediary connector, and platform.

**Simulated run of 5 trails with 10 chromosomes. Population of 40 and 100 generations.**