

Final Project Instructions

Project assignments can be found here: [Project assignments \(https://canvas.unf.edu/courses/87196/pages/project-assignments\)](https://canvas.unf.edu/courses/87196/pages/project-assignments)

Resources

- Graph library: GraphStream (<http://graphstream-project.org/> → [\(http://graphstream-project.org/\)](http://graphstream-project.org/))
- Robot simulator: Webots (<https://cyberbotics.com/> → [\(https://cyberbotics.com/\)](https://cyberbotics.com/))
- Pygame (<https://realpython.com/pygame-a-primer/> → [\(https://realpython.com/pygame-a-primer/\)](https://realpython.com/pygame-a-primer/))
- Any other library for visualization can be used as long they do not contain the solution of the project.
- Machine learning toolboxes:
 - MATLAB (has implementations of standard machine learning techniques such as SVM, KNN, GP, as well as deep learning techniques including CNNs, RNNs, among others)
 - Python Scikit-Learn (has implementations of standard machine learning techniques such as SVM, KNN, GP)
 - Python Pytorch (deep learning techniques including CNNs, RNNs, among others)
 - Python Keras (deep learning techniques including CNNs, RNNs, among others)

Instructions

- The project is divided into two components:
 - Implementation: you will implement the algorithm(s) in a simple environment/problem and make sure it works.
 - Testing: you will test your solution in a variety of problems/environments (*from the related papers*) to show the robustness of your solution.
- A sample test case where your implementation should work in order for it to be successful:
 - a 50x50 environment with NO obstacle in it.
 - You can come up with your own obstacle shapes or they can be random. Please follow the paper that you are implementing for a better idea.
 - Multi-robot papers: there should be at least 2 robots in the environment.
 - Note that in the testing phase, these requirements will be extended (for example, obstacles will be added) to validate your solution in a variety of environments.

Timeline

Deliverables [submissions]	Deadlines
Project assignment [on Canvas]	The first week of March.
Project status I [~1-page report]	23rd March
Project status II [in-class meeting]	13th April
Project status III [face-to-face meeting]	Up to the student
Final submission [code, visualization, and results]	4th May [midnight]
Demo in the class [presentation]	Finals week

Rubric

- Successful implementation for a sample test case: 80%.
- Testing on a variety of problems/environments: 20%.
- **Extra credit:** if you can improve the current solution and demonstrate that your approach performs better and/or extends the given solution, you can receive up to 30% extra credit.
 - There will also be a possibility to publish the extension in a conference/journal.