# PythonRobotics: a Python code collection of robotics algorithms

Atsushi Sakai
https://atsushisakai.github.io/

University of California, Berkeley
Berkeley, USA

**Abstract**

This paper describes an Open Source Software(OSS): PythonRobotics[4].This OSS is a Python code collection of robotics algorithms, especially focusing on autonomous navigation. It aims for beginners of robotics to understand basic ideas of each algorithm. The algorithms which is widely used in academia and industry and practical are selected. Each sample code only depends some standard modules on Python 3.x. In this paper, related works of this project, some key ideas about this OSS project, and brief structure of this repository are introduced. I also discuss future works of this project.

## 1 Introduction

## 2 Related works

## 3 Philosophy

In this section, the philosophy of this project is described.

This project aims for beginners of robotics to understand basic ideas of each algorithm. Therefore, the code have to be easy to read and understand the algorithm. Programming language, Python[1] is adopted in this project because it has good code readability and it allows us to focus on algorithm itself.

The algorithms which is widely used in academia and industry and practical are selected. For example, Kalman filters for localization

# 4 Repository structure

## 4.1 Localization

## 4.2 Mapping

## 4.3 SLAM

## 4.4 Path planning

## 4.5 Path tracking

# 5 Conclusion and future work

# 6 Acknowledgments

I appreciate contributors: Daniel Ingram[5], Joe Dinius[3], Karan Chala[2], and Antonin RAFFIN[6]. This is my GitHub account[7]

# References

[1] Python. https://www.python.org.

[2] Karan Chawla. Github account. https://github.com/karanchawla.

[3] Joe Dinius. Github account. https://github.com/jwdinius.

[4] Atsushi Sakai et al. Atsushisakai/pythonrobotics: Python sample codes for robotics algorithms. https://github.com/AtsushiSakai/PythonRobotics.

[5] Daniel Ingram. Github account. https://github.com/daniel-s-ingram.

[6] Antonin RAFFIN. Github account. https://github.com/araffin.

[7] Atsushi Sakai. Github account. https://github.com/AtsushiSakai.