

2학년 파란학기 1학기 보고서

기계학습을 통한 빈 공간 인식 및 활용 시스템 개발

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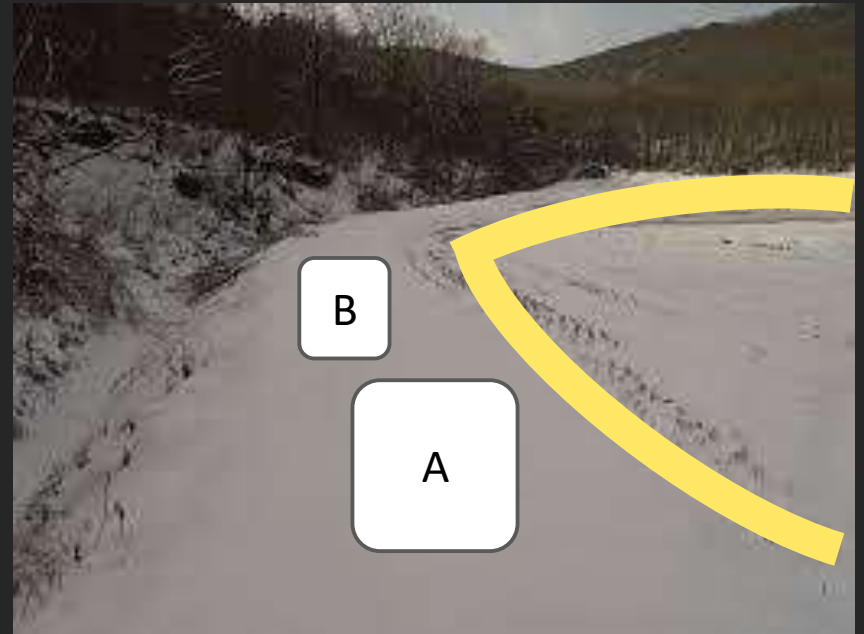
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- ✓ 1학기 연구를 마치며



연구 계기

1학기 목표

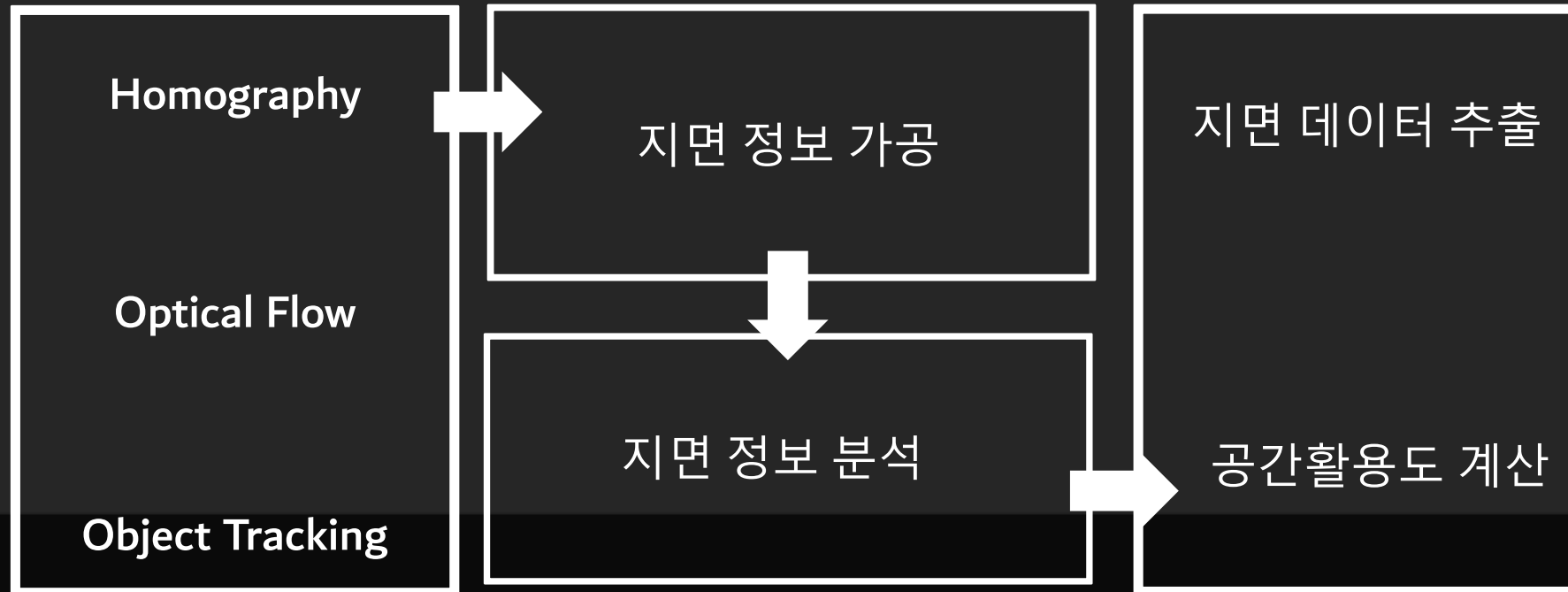


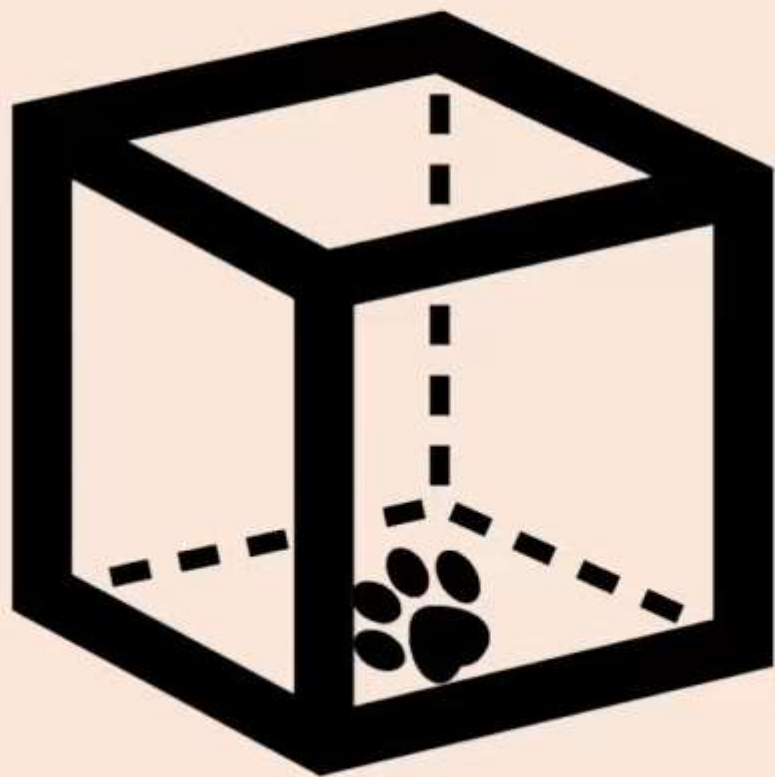
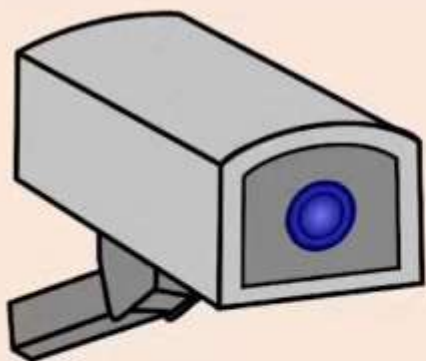


1학기 목표

1학기 목표

빈 공간 인식 프로그램 개발







1학기 구현 과정

1학기 구현 결과

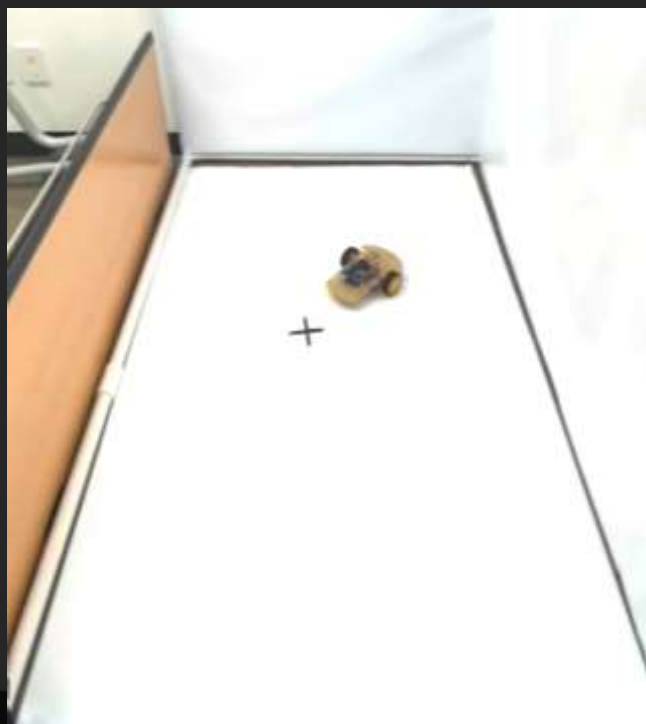




1학기 구현 결과

1학기 목표

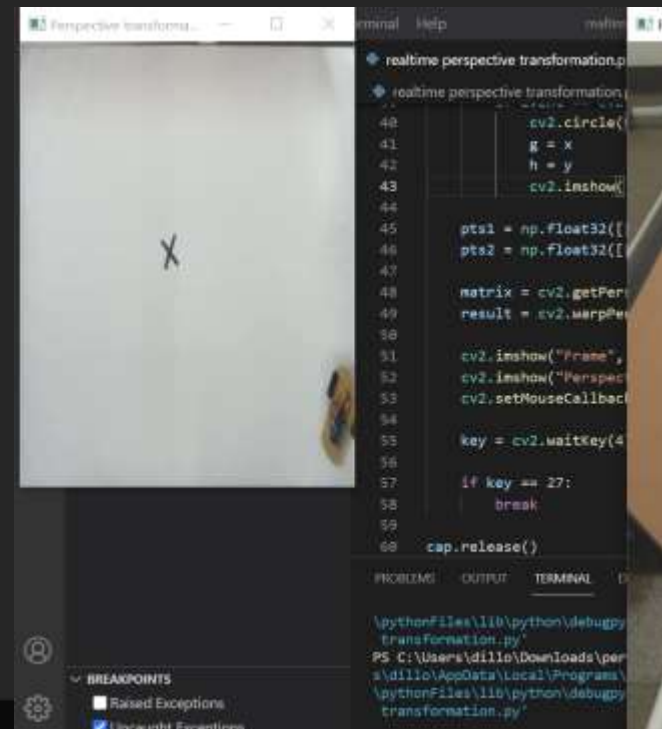
제작된 2개의 프로그램 설명



프로그램 1

과정1

homography

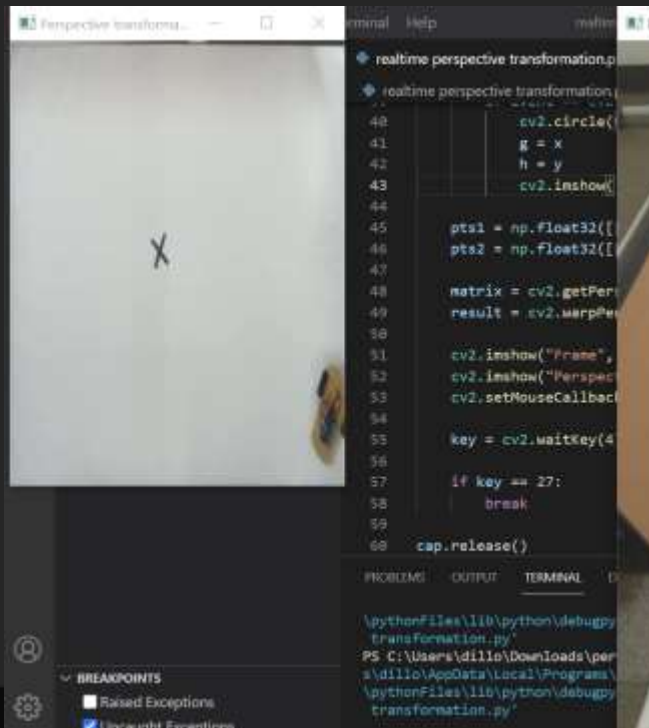




1학기 구현 결과

1학기 목표

제작된 2개의 프로그램 설명



프로그램 1

과정2

Object tracking





1학기 구현 결과

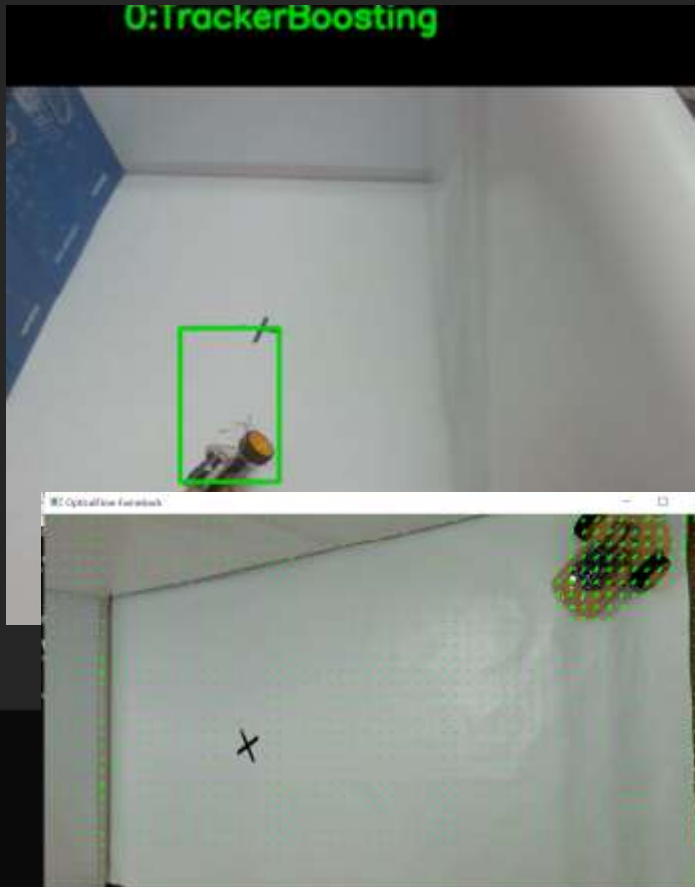
1학기 목표

제작된 2개의 프로그램 설명

프로그램 1

과정3

좌표 값 메모장에
저장



```

object location.txt
(581, 143, 177, 163)(586, 138, 177, 163)(589, 135, 177, 163)(594, 129, 177, 163)(599, 125, 177, 163)
(604, 119, 177, 163)(609, 113, 177, 163)(614, 109, 177, 163)(619, 103, 177, 163)(624, 99, 177, 163)
(633, 91, 177, 163)(638, 87, 177, 163)(643, 81, 177, 163)(644, 81, 177, 163)(649, 81, 177, 163)(656,
81, 177, 163)(669, 81, 177, 163)(674, 81, 177, 163)(679, 81, 177, 163)(680, 81, 177, 163)(681, 81,
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177, 163)(696, 81, 177, 163)(695, 81, 177, 163)(692, 87, 177, 163)(689, 91, 177, 163)(682, 99, 177,
163)(679, 101, 177, 163)(678, 105, 177, 163)(675, 107, 177, 163)(674, 109, 177, 163)(675, 109, 177,
163)(676, 109, 177, 163)(679, 107, 177, 163)(682, 101, 177, 163)(685, 97, 177, 163)(688, 93, 177,
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177, 163)(683, 105, 177, 163)(678, 109, 177, 163)(677, 111, 177, 163)(676, 111, 177, 163)(677, 111,
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177, 163)(693, 97, 177, 163)(694, 97, 177, 163)(699, 91, 177, 163)(702, 89, 177, 163)(703, 89, 177,
163)(704, 89, 177, 163)(705, 89, 177, 163)(706, 89, 177, 163)(705, 89, 177, 163)(706, 89, 177, 163)
(707, 89, 177, 163)(710, 87, 177, 163)(709, 87, 177, 163)(710, 89, 177, 163)(711, 87, 177, 163)(712,
87, 177, 163)(713, 87, 177, 163)(714, 85, 177, 163)(715, 85, 177, 163)(714, 87, 177, 163)(713, 89,
177, 163)(710, 93, 177, 163)(705, 101, 177, 163)(702, 107, 177, 163)(699, 113, 177, 163)(696, 117,
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81, 177, 163)(728, 81, 177, 163)(735, 81, 177, 163)(736, 81, 177, 163)(737, 81, 177, 163)(736, 81,
177, 163)(735, 81, 177, 163)(732, 87, 177, 163)(727, 91, 177, 163)(724, 95, 177, 163)(715, 105, 177,

```

(x, y, width, height)

x, y : 추적 상자 중심의 x, y 좌표

width, height : 추적 상자의 너비, 높이



1학기 구현 결과

1학기 목표

제작된 2개의 프로그램 설명

```

object location.txt
(581, 143, 177, 163)(586, 139, 177, 163)(589, 135, 177, 163)(594, 129, 177, 163)(599, 125, 177, 163)
(604, 119, 177, 163)(609, 113, 177, 163)(614, 109, 177, 163)(619, 103, 177, 163)(624, 99, 177, 163)
(633, 91, 177, 163)(636, 87, 177, 163)(639, 81, 177, 163)(644, 81, 177, 163)(649, 81, 177, 163)(656,
81, 177, 163)(669, 81, 177, 163)(674, 81, 177, 163)(679, 81, 177, 163)(688, 81, 177, 163)(681, 81,
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163)(676, 109, 177, 163)(679, 107, 177, 163)(682, 101, 177, 163)(685, 97, 177, 163)(688, 93, 177,
163)(689, 91, 177, 163)(698, 81, 177, 163)(697, 81, 177, 163)(698, 81, 177, 163)(701, 81, 177, 163)
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177, 163)(700, 113, 177, 163)(701, 109, 177, 163)(704, 105, 177, 163)(711, 95, 177, 163)(714, 89,
177, 163)(719, 81, 177, 163)(720, 81, 177, 163)(725, 81, 177, 163)(726, 81, 177, 163)(725, 81, 177,
163)(724, 81, 177, 163)(719, 87, 177, 163)(714, 93, 177, 163)(711, 95, 177, 163)(706, 101, 177, 163)
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81, 177, 163)(728, 81, 177, 163)(735, 81, 177, 163)(736, 81, 177, 163)(737, 81, 177, 163)(736, 81,
177, 163)(735, 81, 177, 163)(732, 87, 177, 163)(727, 91, 177, 163)(724, 95, 177, 163)(715, 105, 177,

```

(x, y, width, height)

x, y: 추적 상자 중심의 x,y 좌표

width, height: 추적 상자의 너비, 높이

프로그램 2

과정 4

데이터 정형화

```

location.txt
581 143 177 163
586 139 177 163
589 135 177 163
594 129 177 163
599 125 177 163
604 119 177 163
609 113 177 163
614 109 177 163
619 103 177 163
624 99 177 163
633 91 177 163
636 87 177 163
639 81 177 163
644 81 177 163
649 81 177 163
656 81 177 163
669 81 177 163
674 81 177 163
679 81 177 163
680 81 177 163
681 81 177 163
684 81 177 163
687 81 177 163
688 81 177 163
689 81 177 163
688 83 177 163
687 85 177 163
686 87 177 163
683 93 177 163
678 97 177 163

```



1학기 구현 결과

1학기 목표

제작된 2개의 프로그램 설명

```
location.txt ~
581 143 177 163
586 139 177 163
589 135 177 163
594 129 177 163
599 125 177 163
604 119 177 163
609 113 177 163
614 109 177 163
619 103 177 163
624 99 177 163
633 91 177 163
636 87 177 163
639 81 177 163
644 81 177 163
649 81 177 163
656 81 177 163
669 81 177 163
674 81 177 163
679 81 177 163
680 81 177 163
681 81 177 163
684 81 177 163
687 81 177 163
688 81 177 163
689 81 177 163
688 83 177 163
687 85 177 163
686 87 177 163
683 93 177 163
678 97 177 163
```

(x, y, width, height)

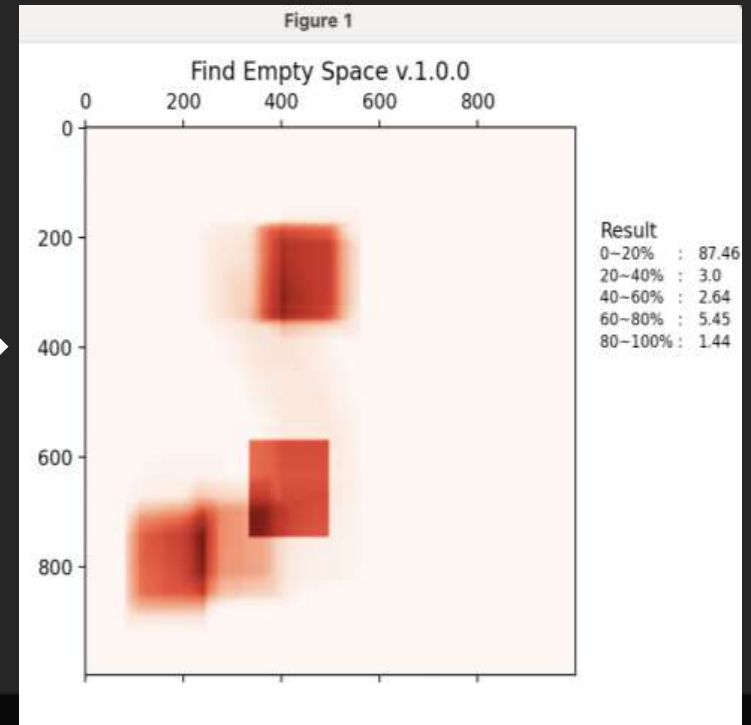
x, y : 추적 상자 중심의 x,y 좌표

width, height : 추적 상자의 너비, 높이

프로그램 2

과정 5

빈자리 인식
알고리즘 적용





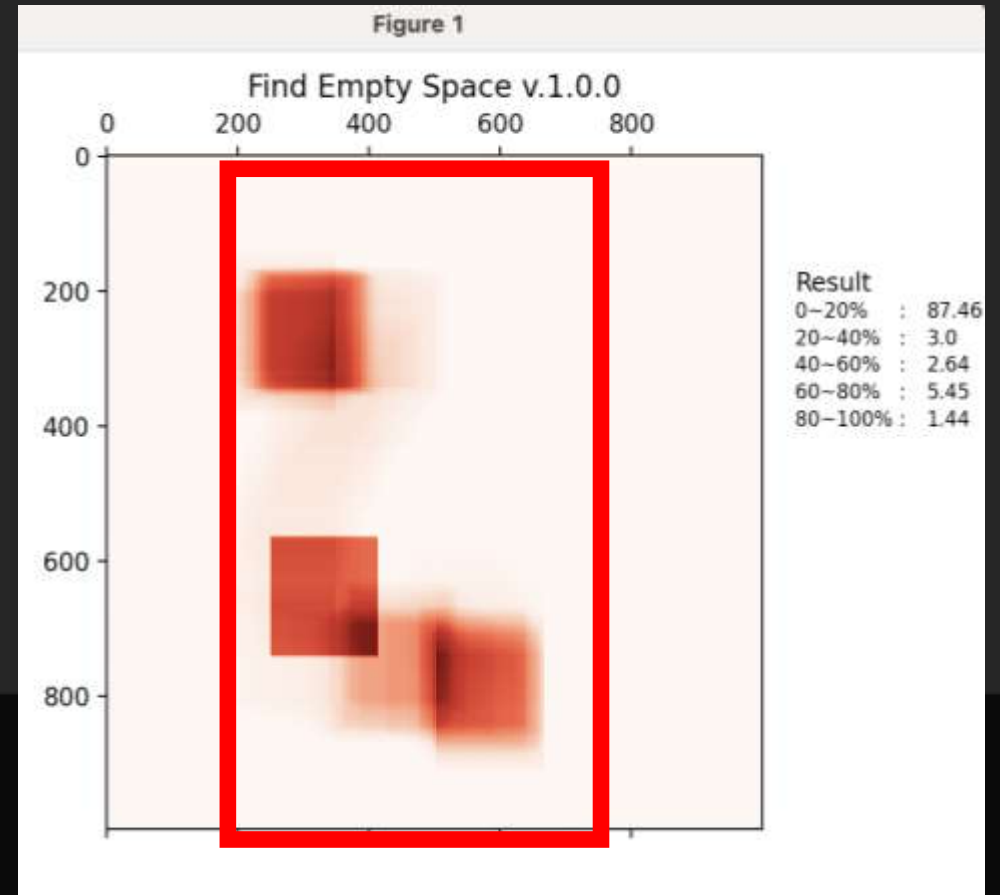
1학기 구현 결과(실제 대조)

1학기 목표

촬영된 영상 vs 실제 빈공간 인식 알고리즘 결과



=





2학기 목표

마무리

인공지능 도입

데이터 수집 & 가공



기계 학습
Fine tuning



지면 & 객체 인식

빈공간 인식 프로그램 시험 운
용



느낀점 및 다짐

마무리

Open CV, Python 활용 능력

개발 과정 이해도 상승

AI 학습 데이터 확보에 대한 시
각

감사합니다!



PPT designed by.

공군본부 공보정훈실미디어콘텐츠과 제작

