

Portfolio

Yunju LEE

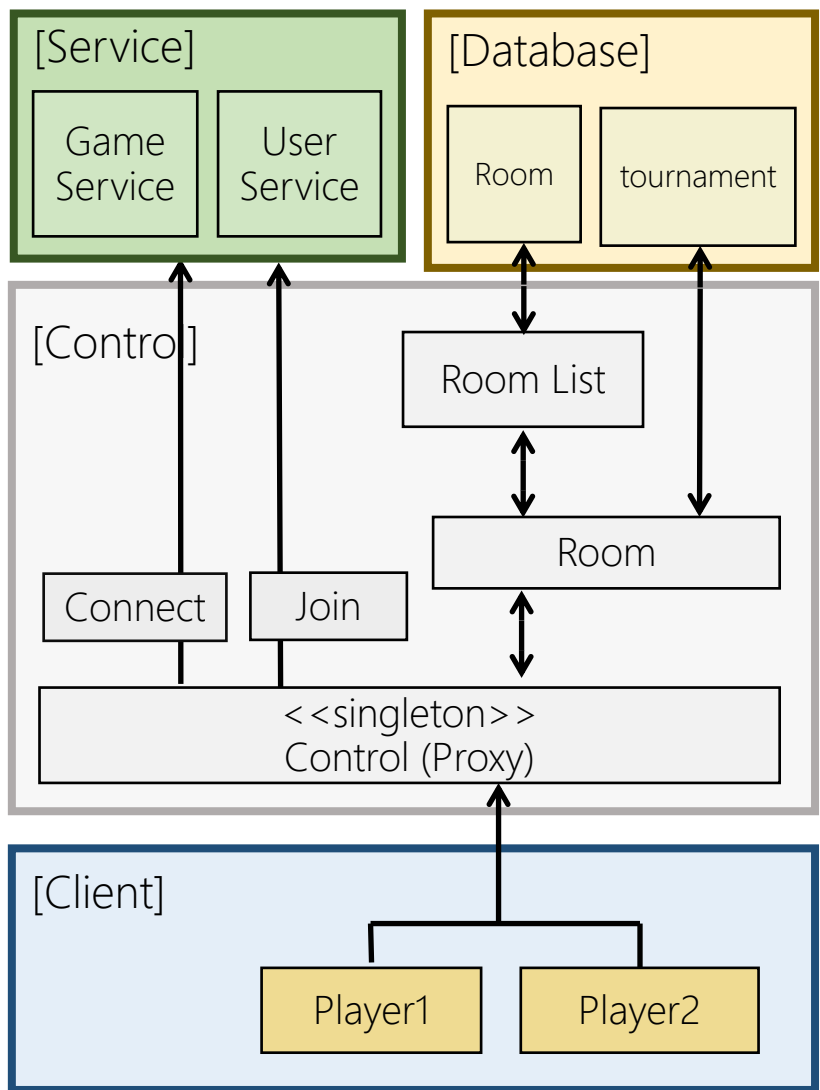
HP: +82 10-8353-5306

MAIL: eyunju2@naver.com

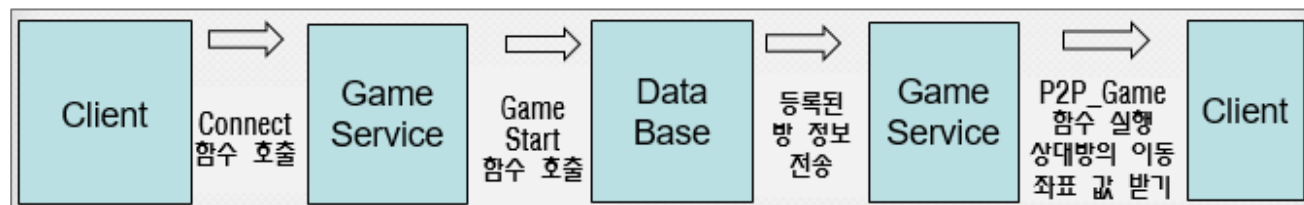
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- ▶ Object classification with tactile sensor
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- ▶ Object classification based on point cloud data from rgb-d camera
- ▶ Human Pose Estimation with restored occluded mask image

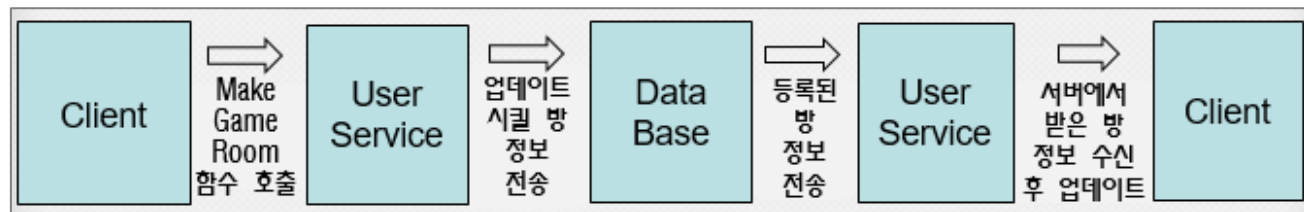
CHESS Game



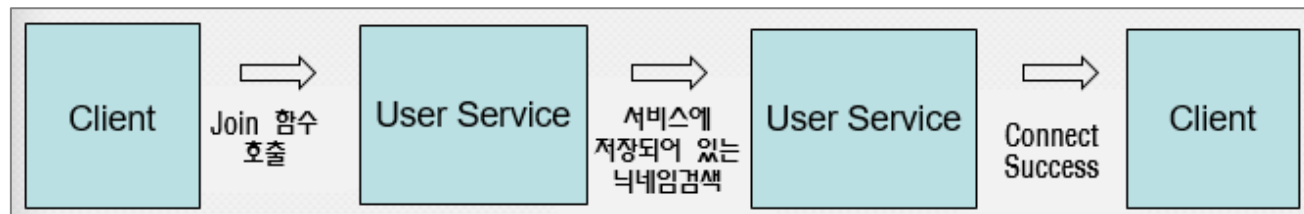
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<Server>

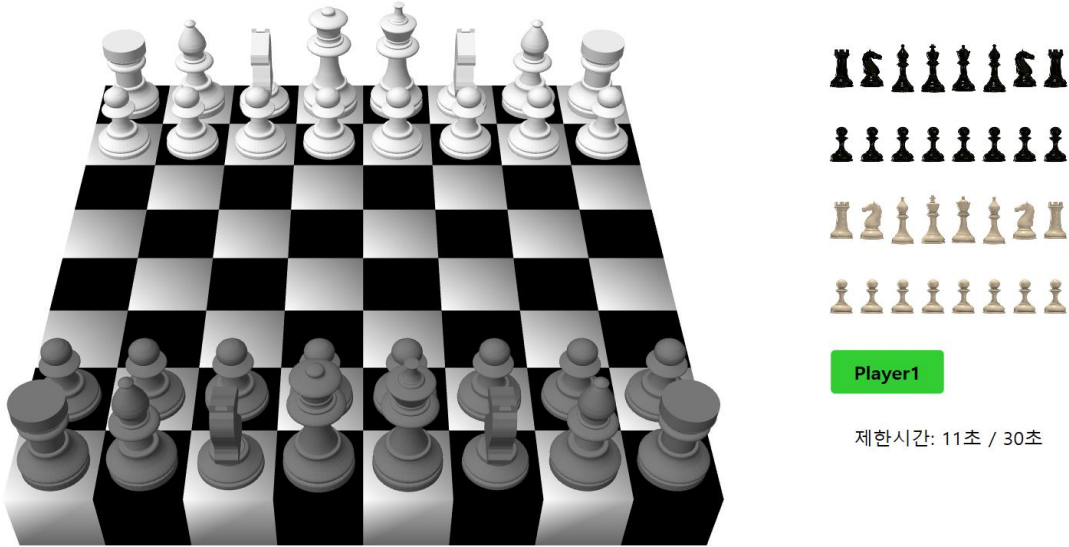


<Login>



CHESS Game

x

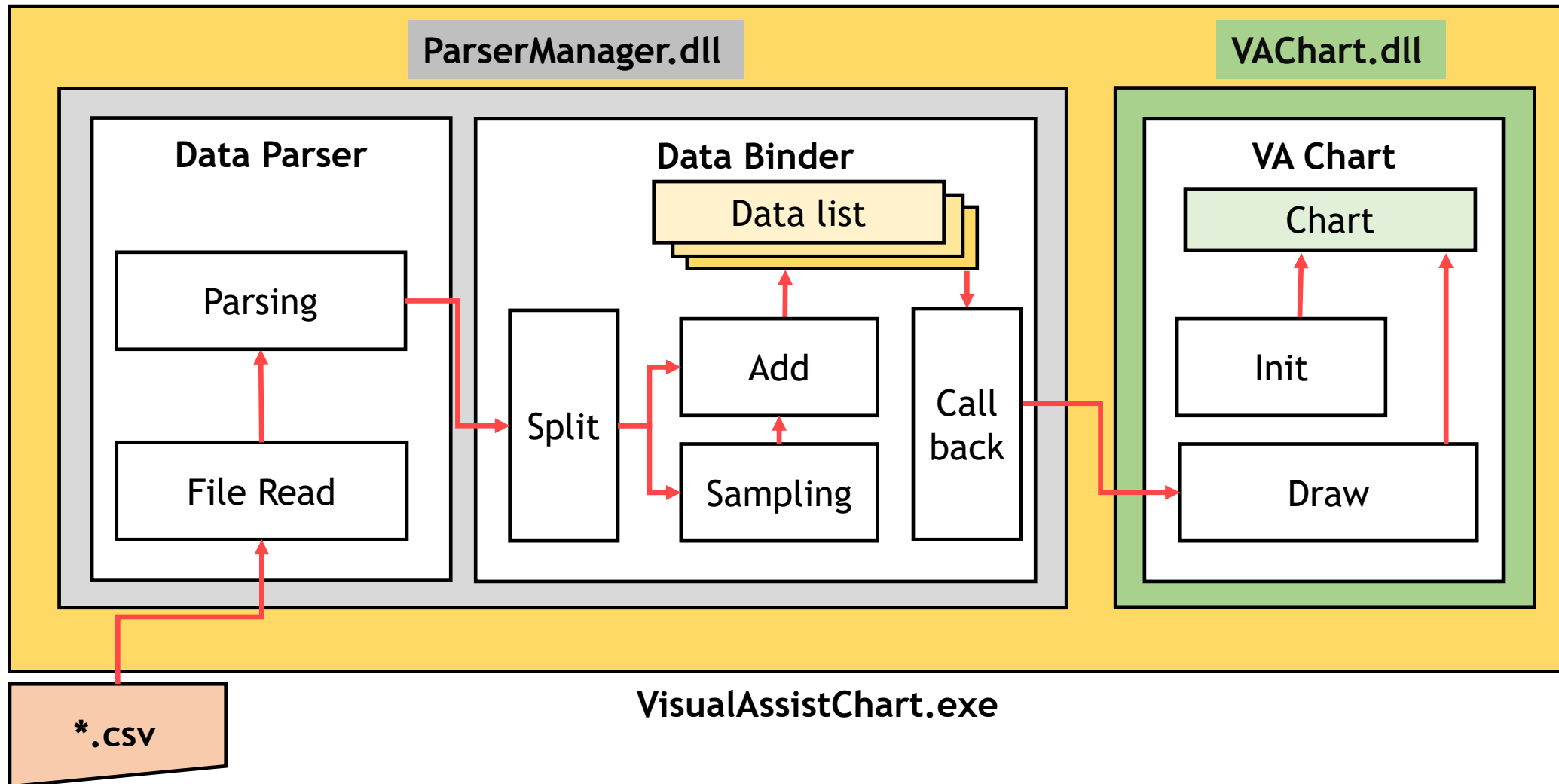


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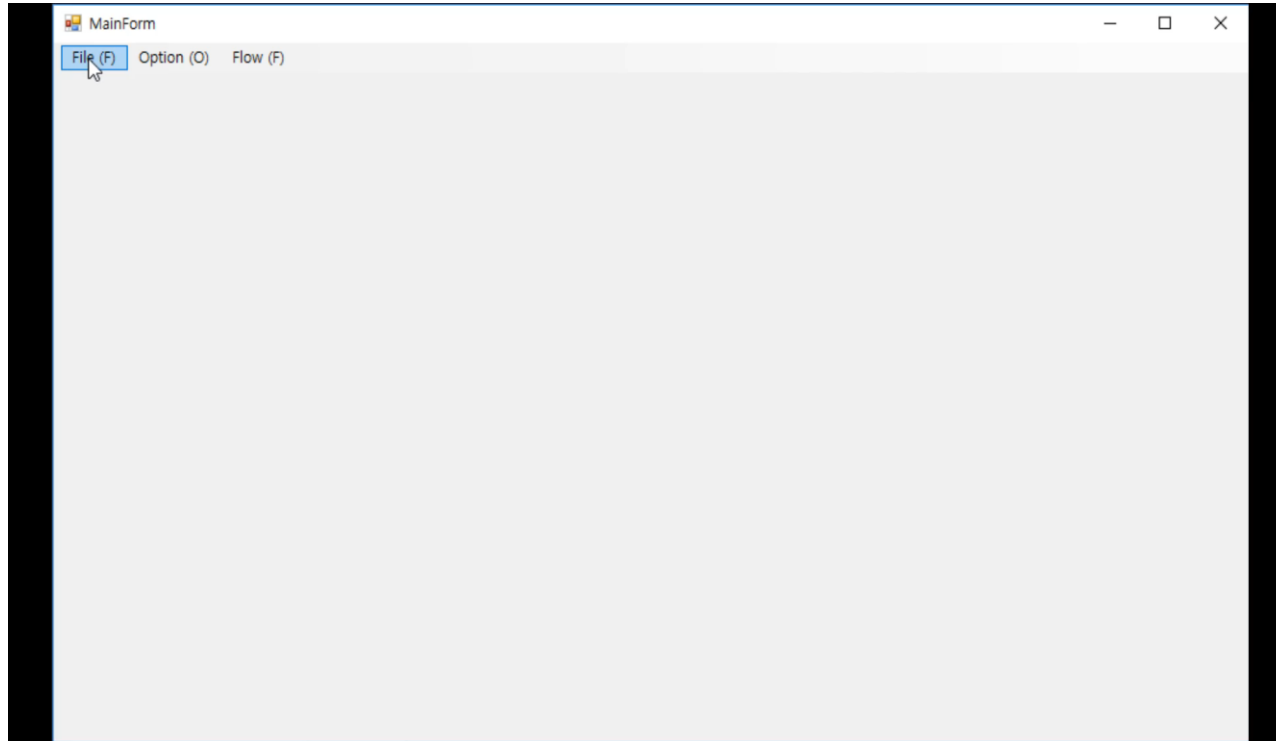
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Neurophysiological Big Data Visualization Tool



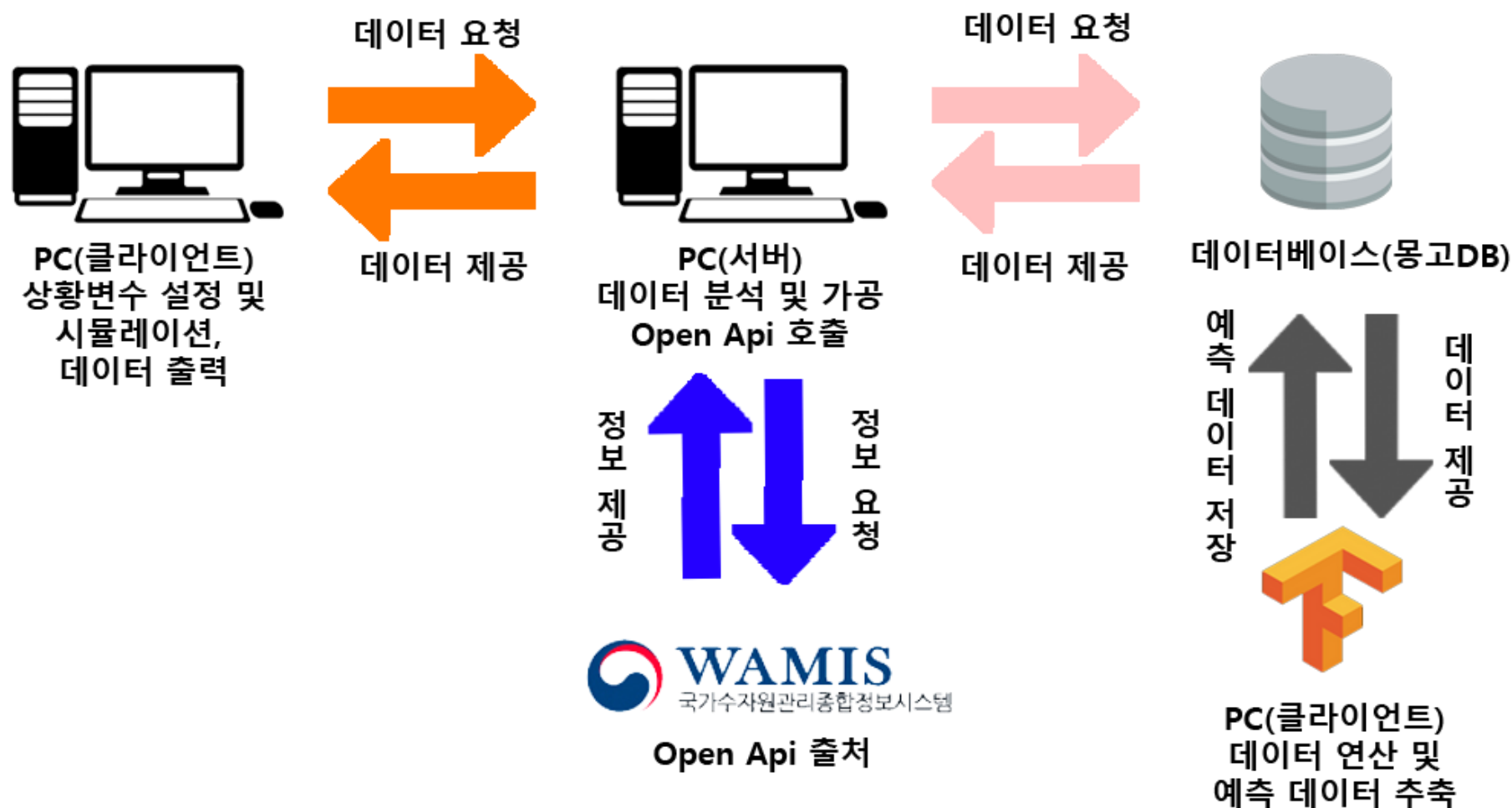
Neurophysiological Big Data Visualization Tool



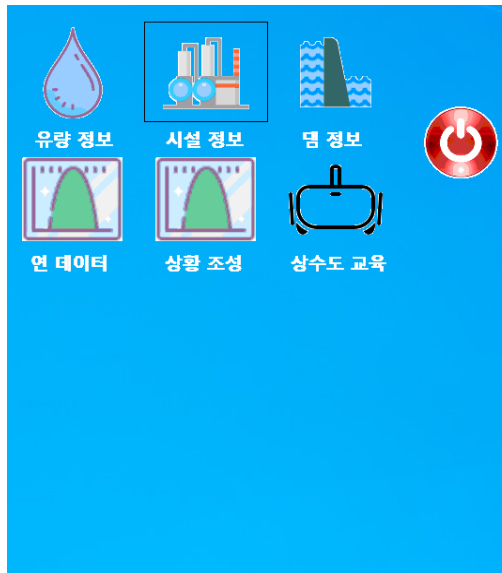
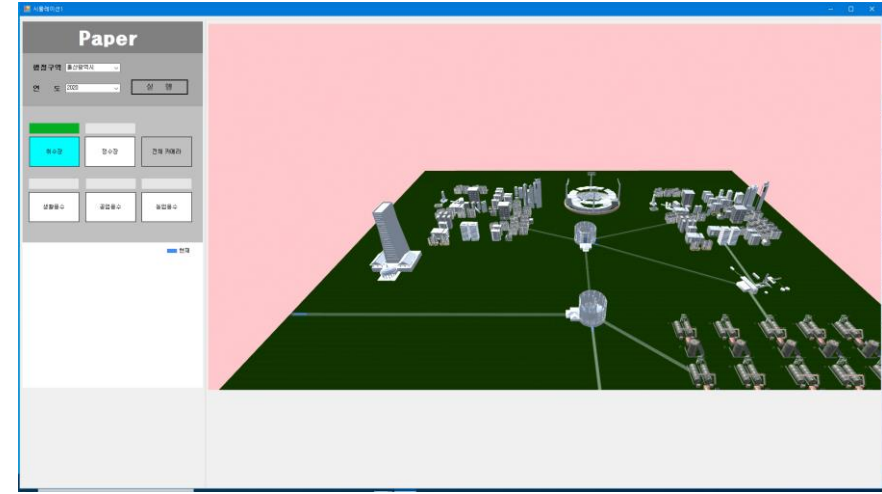
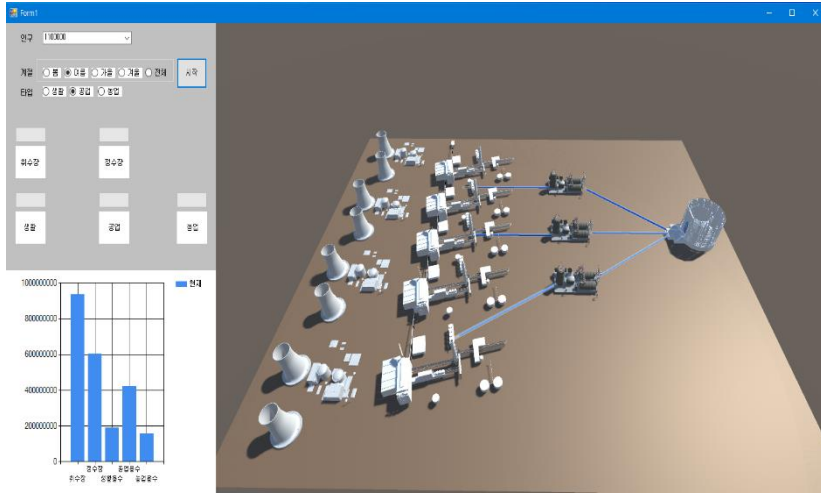
<Tool Options>

- ▶ Asynchronously parsing
- ▶ High-reaction speed
- ▶ Window sliding by using mouse dragging
- ▶ Scrolling
- ▶ Graph zoom, separate, integrate

Waterworks Simulation



Waterworks Simulation

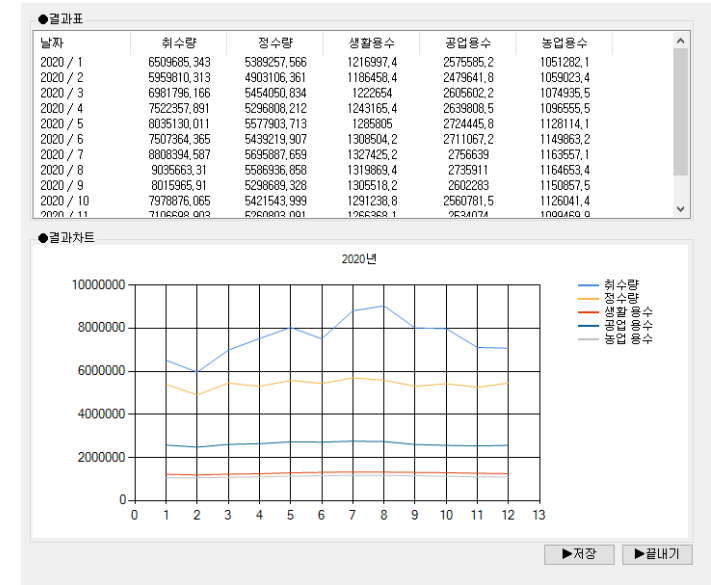


Paper

● 시설 선택
○ 취수장 ○ 정수장 ○ 가압장 ● 배수지 ● 조건 검색

배수지 정보

위치	후시설	전시설	비상시 급수일...	시설명	시설용량	평균급수량	최대급수량	급수지역
부산광역시 남...	감만가압장	감만	3000	감만	1500	3000	감만1.2동, 대...	
부산광역시 서...	사상가설	사상	4000	사상	6000	6000	암남동, 감천동...	
부산광역시 북...	사상신설(개금)	개금1	15000	개금1	26785	33557	동구, 부산진구...	
부산광역시 북...	사상신설(주례1)	개금2	2500	개금2	1746	2846	개금1.2동, 일...	
부산광역시 연...	덕천(신사직)	거제	15000	거제	12526	18168	거제4.2동, 일...	
부산광역시 기...	고촌가압장	고촌	2000	고촌	650	920	고촌역지개발...	
부산광역시 서...	사상신설(수...	구덕	1000	구덕	400	1000	보수1동, 통대...	
부산광역시 북...	덕천(구포)	구포2	2000	구포2	3400	4500	구포3동, 연...	
부산광역시 북...	화명	금곡	9000	금곡	24000	27300	금곡, 화명2.3...	
부산광역시 기...	기장와동가압장	기장	10000	기장	1670	4210	명래산업단지...	
부산광역시 서...	사상가설(중...	불마들	1000	불마들	904	1000	서대신동, 동대...	
부산광역시 서...	사상가설(남...	남부민	2000	남부민	1700	2100	남부민2동, 연...	
부산광역시 금...	덕천(오류)구...	남산	6000	남산	12797	20238	구서2, 장동...	
부산광역시 강...	강서공업용수...	강서	17000	강서	0	0	녹산/신호동...	
부산광역시 북...	사상신설(신...	당감	10000	당감	4467	6093	당감4, 부암1.3...	
부산광역시 서...	사상신설(수...	대청	2500	대청	1000	2500	중구(남포동...	
부산광역시 서...	사상가설(괴정)	대티	6500	대티	5600	6700	서대신1.2.3동...	
부산광역시 서...	사상가설(괴...	대티2	5000	대티2	1200	1200	괴정2동, 서대...	
부산광역시 북...	덕천	만덕1	5000	만덕1	7200	7500	만덕2.3동, 일...	
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부산광역시 북...	덕천(만덕3P)	만덕5	3000	만덕5	3000	3500	만덕3역지개...	
부산광역시 수...	연산배수지	망미	2000	망미	2000	2000	망미1동, 연산3...	
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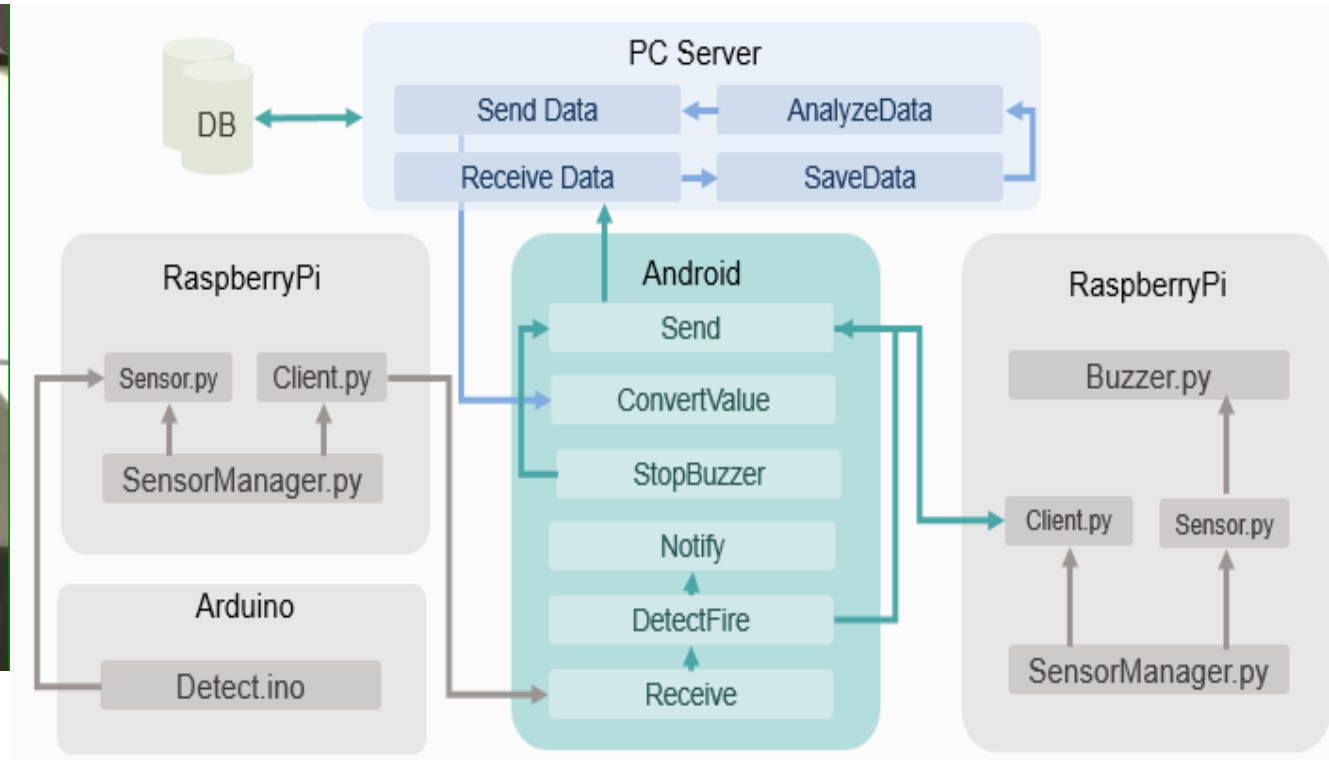


Home Alone

<Demo video>



<Architecture>



Robot Simulation

For Security,
Block Robot design

Robot Waist

axis1 ☒

Robot Arms

	Left	Right	axis line
axis1	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
axis2	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
axis3	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>
axis4	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
axis5	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
axis6	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
axis7	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

View

☐ X1 ☐ X1.5 ☐ X2 ☒ Free Mode

Control Key

Vertical Rotation = Up, W, Down, S
Horizontal Rotation = Left, A, Right, D
Vertical camera move = Q(down), E(up)
Mouse wheel = Distance (when view mode is Free)

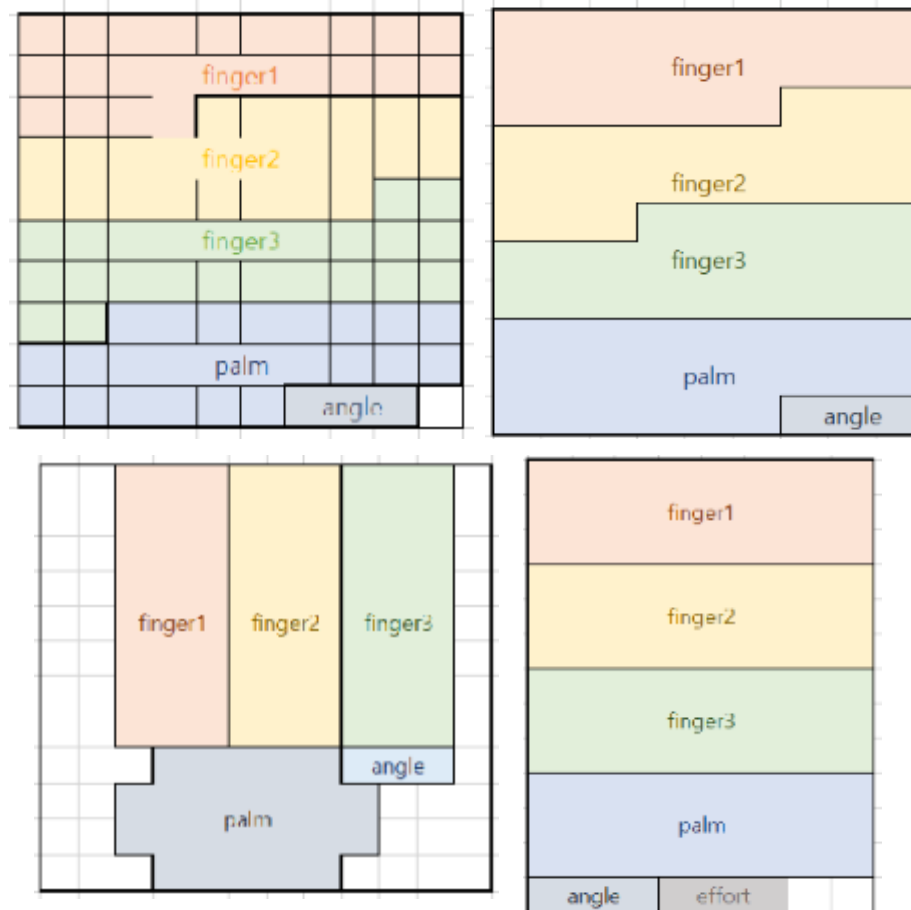
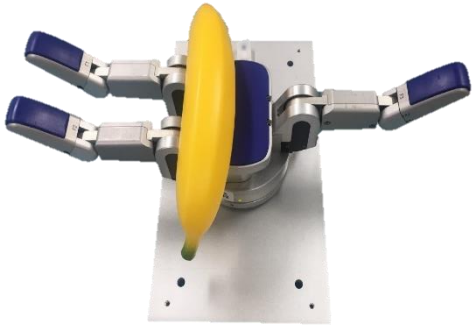
Amiro Controller

Status :

<Simulation functions>

- ▶ Robot Viewer
- ▶ Various view
- ▶ Set angle value
- ▶ Connect with robot controller

Object classification with tactile sensor



Object Grasp by Robot Hand



Collect Tactile Data (Tactile Image)



Feature Scaling (Pre-processing)

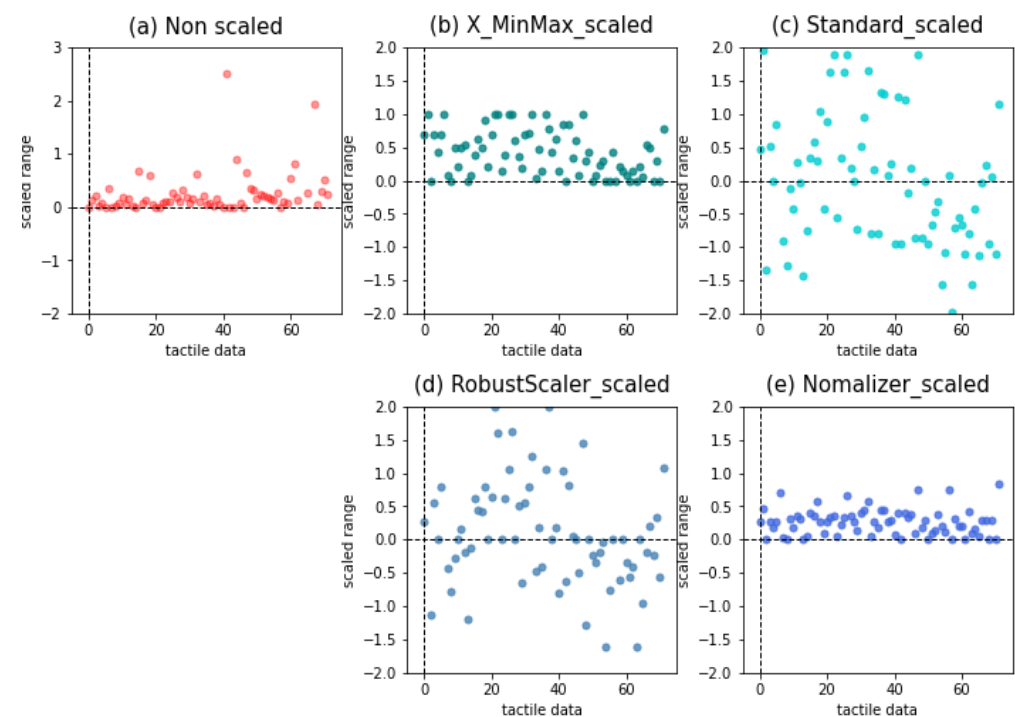


Learning & Model Making (CNN)



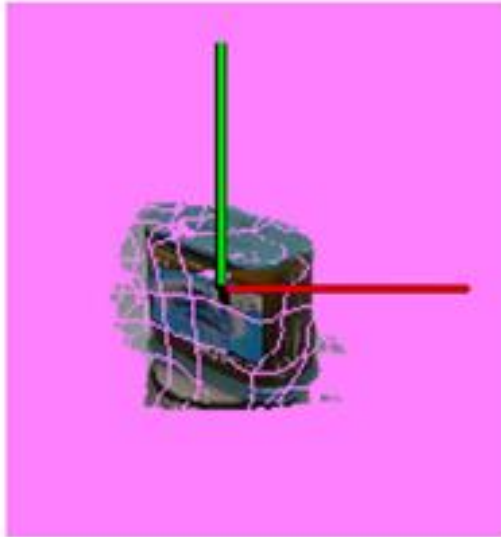
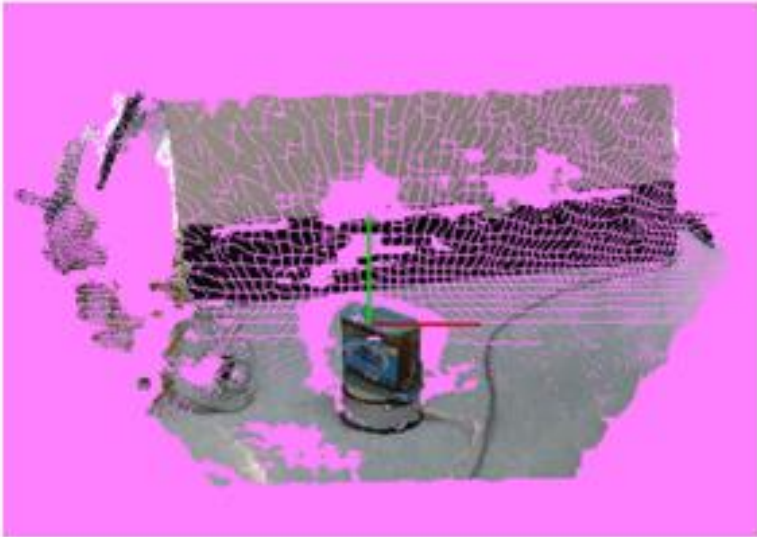
Object Classification

Object classification with tactile sensor



	Finger	Hand	Angle	Effort
Standard	91.17%	83.25%	87.08%	82.08%
Min max	91.17%	85.08%	90.17%	86.75%
Robust	81.92%	82.83%	83.67%	87.25%
Normalize	86.25%	88.83%	95.17%	94.58%

Point cloud Edit Program



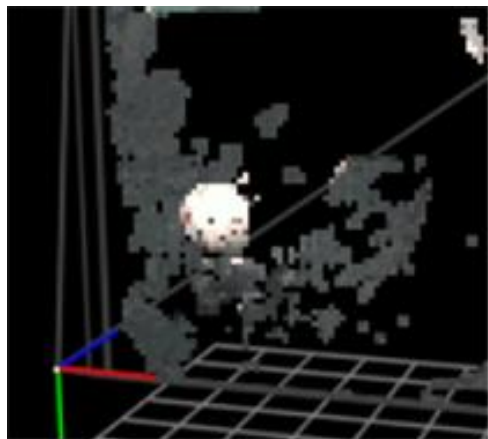
<Edit functions>

- ▶ .pcd / .ply file viewer
- ▶ File edit, cut data
- ▶ Object segmentation using kdtree

Object classification based on point cloud data from rgb-d camera



Object data capture



Original point cloud data

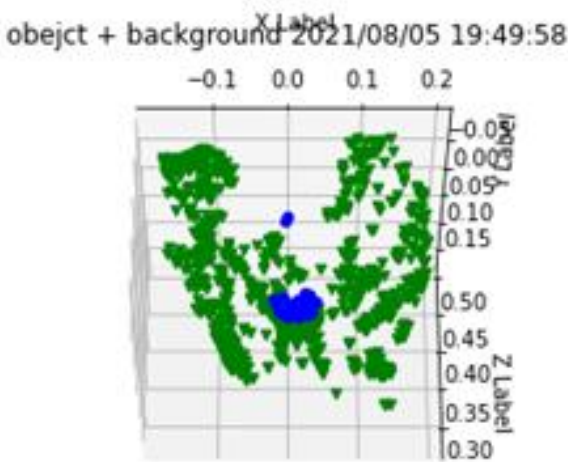
pred: tennis



Classification results

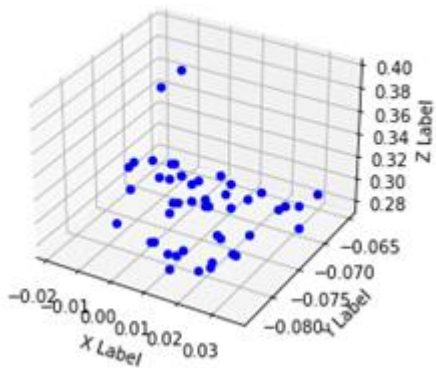


Used objects



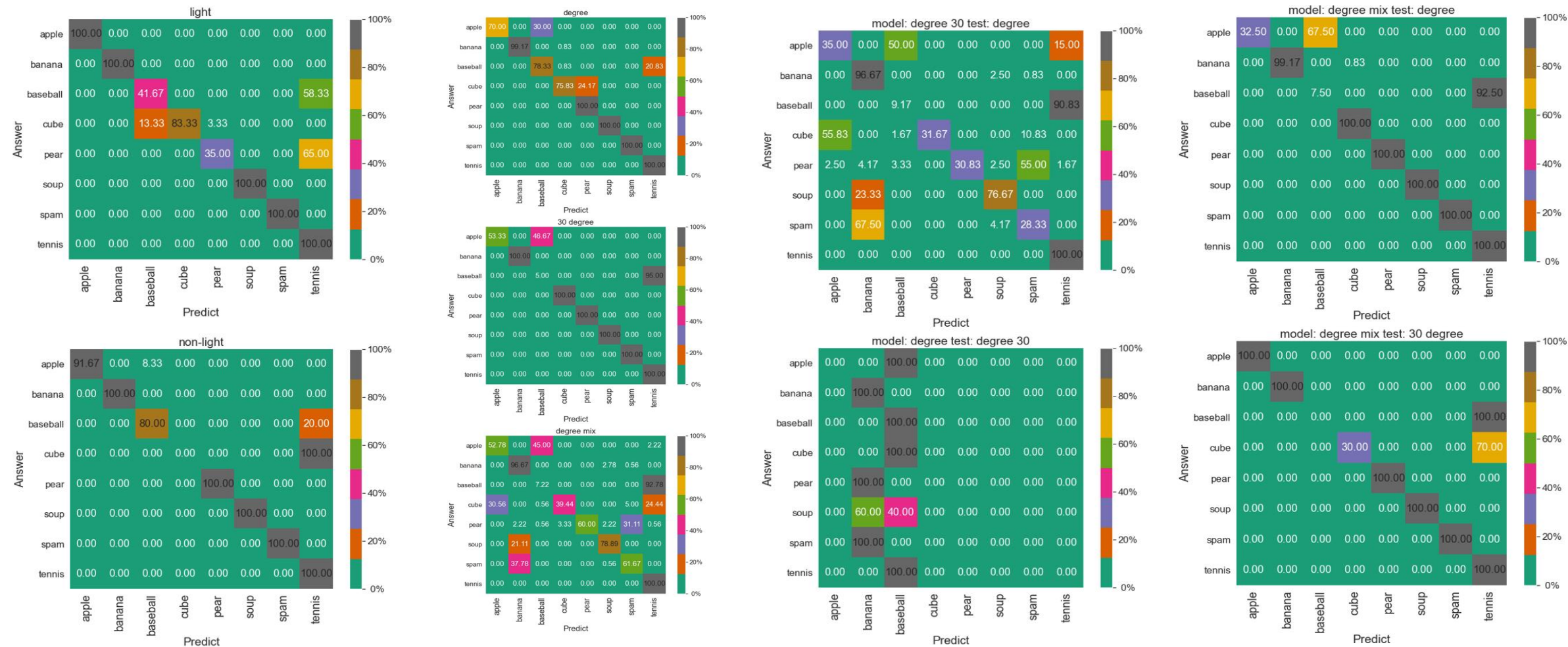
Separation
object and background

object only 2021/08/05 19:49:58

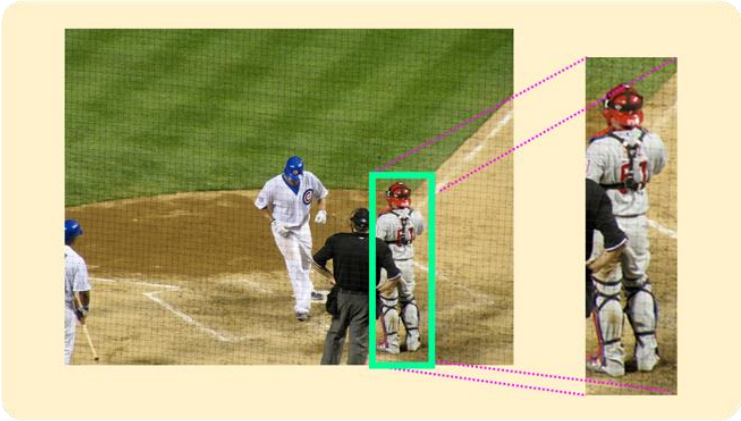
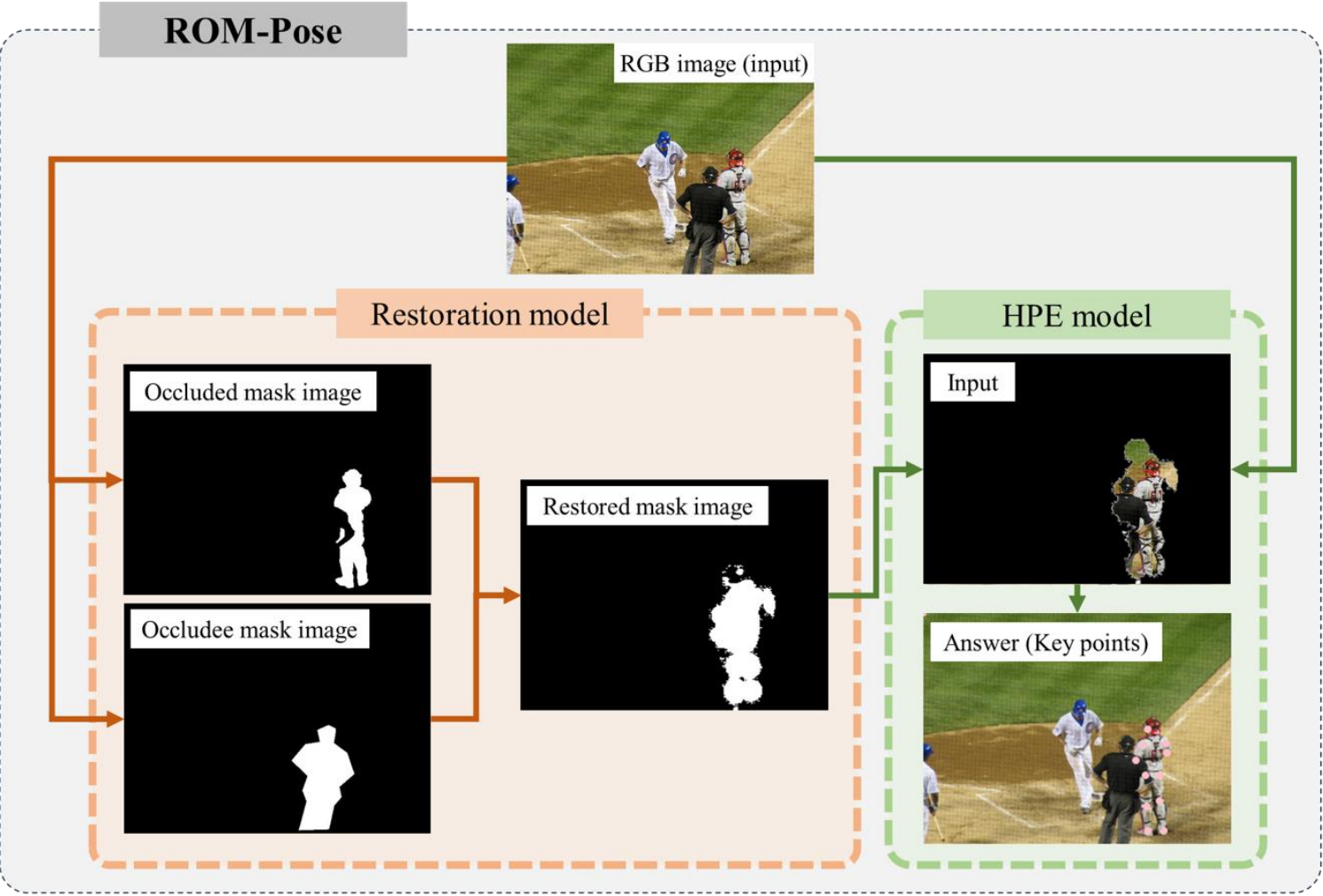


Perception parts of object

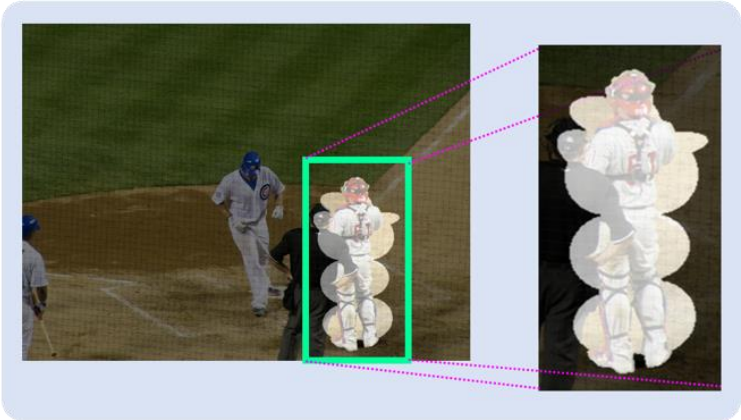
Object classification based on point cloud data from rgb-d camera



Human Pose Estimation with restored occluded mask image



(a) Original input image



(b) ROM-Pose input image

