



Identification of Future Potential Collaborations Motion Simulation Laboratory BinKen Pang



Company Background

Motion Simulation Lab located in Furnas Hall location on UB's North Campus. The facility includes a 6 degree-of-freedom motion platform with vehicle buck and surround screens. In addition, a zero degree-of-freedom simulator is available for mixed-fidelity applications. The facility has been used for studies on driver behavior and as part of driver-training initiatives. The facility can be contracted by industry and academic groups for numerous uses.

Objectives

Expand the potential outreach in three major categories of collaborations and obtain conceivable impact through collaborations. Below are the types of collaborations and their potential benefits:

Industrial Collaborations

- Society benefits from university-industry research relationships through innovative driving simulator products and technologies.
- Cutting edge of driving simulator research with low overhead.

Academic Research Collaborations

- Be able to publish more research paper with stronger authority.
- Be able to cooperate with other field of professionals with current facilities.

Government Sector Collaborations

- Provide underpinning for transportation safety research by using simulator.
- Be able to explore wider range of unexploded field of driving simulator.

Results

Industrial Collaborations

1) In Buffalo:

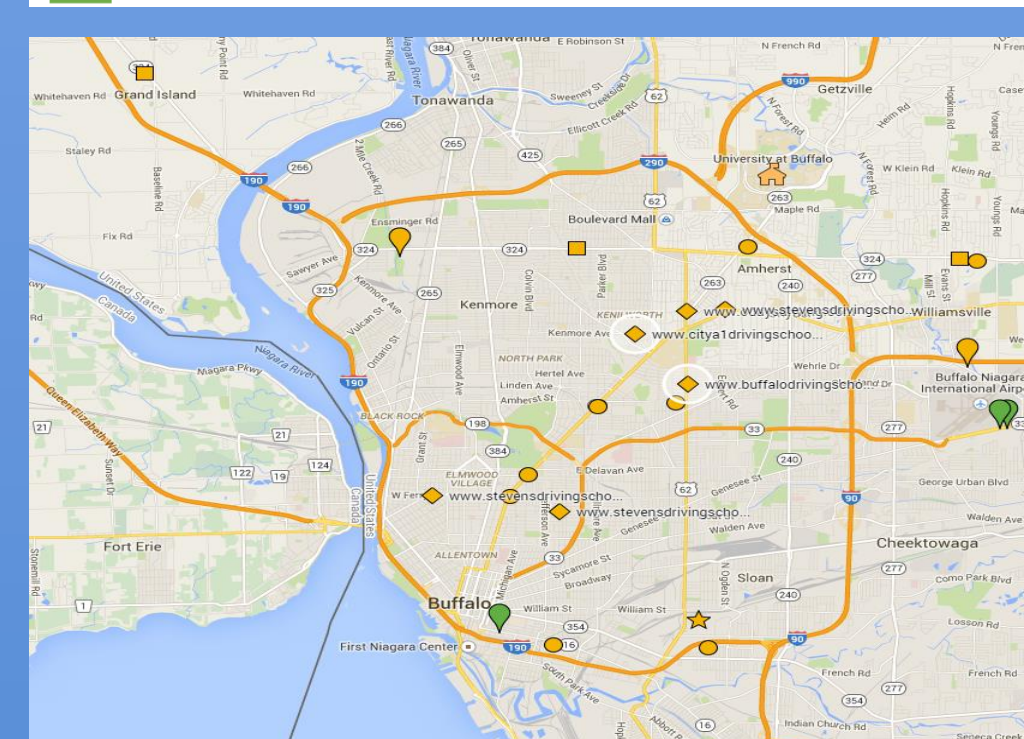
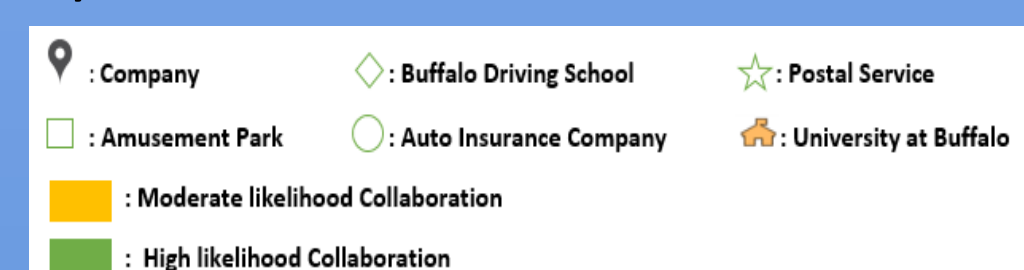


Figure 1: The map of distribution of different institutions in Buffalo area

Collaborations	#	Type of collaborations can be achieved
Company	6	Improve and utilize the use of simulator in different sector of industries.
Driving School	7	Allow driving learners have the basic training before they start the real driving on road.
Amusement Parks	3	Invent the driving simulator arcades and motion based rides.
Local Auto Insurance Company	8	Use driving simulator for driving evaluation. Then, customers with good evaluation results will receive insurance discount.

Table 1: The number and type of collaborations can be achieved with different institutions in Buffalo area

2) Outside Buffalo, but in New York State

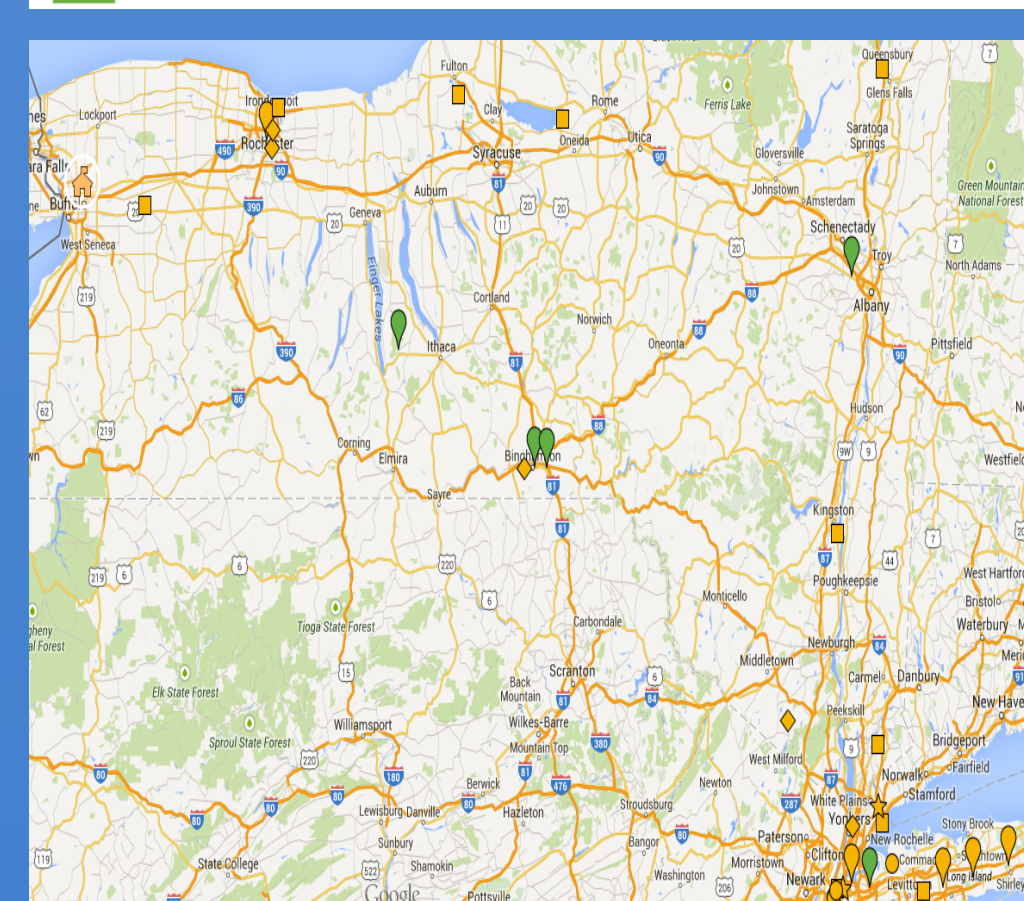
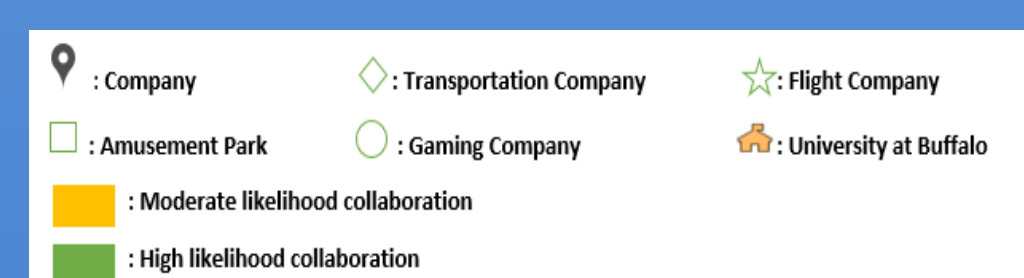


Figure 2: The map of distribution of different institutions outside Buffalo but in New York State

Collaborations	#	Type of collaborations can be achieved
Company	9	Improve and utilize the use of simulator in different sector of industries.
Gaming Company	4	Develop the simulation not only for racing simulation games, but also flight simulation games, tank driving simulation games, and others.
Amusement Park	10	Invent the driving simulator arcades and motion based rides
Flight Company	2	Use driving simulator for driving evaluation. Then, customers with good evaluation results will receive insurance discount.
Transportation Company	5	Enable workers to acquire, practice, and develop driving skills. Workers can also rehearse reactions to situations and improve decision making skills during dangerous situation.

Table 2: The number and type of collaborations can be achieved with different institutions outside Buffalo, but in New York State

Results (continued)

Academic Research Collaborations in New York State

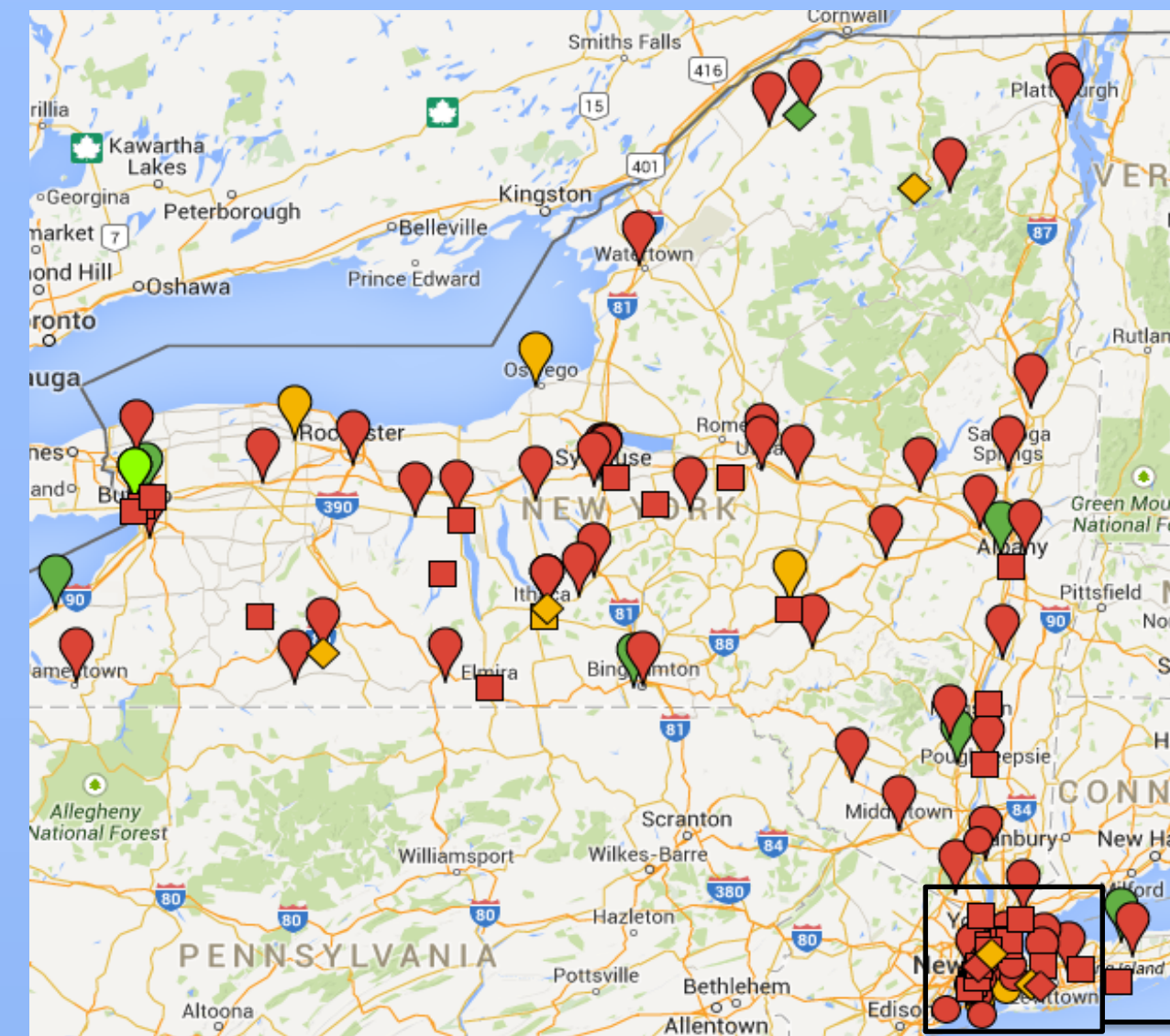


Figure 3: The map of distribution of universities in New York State

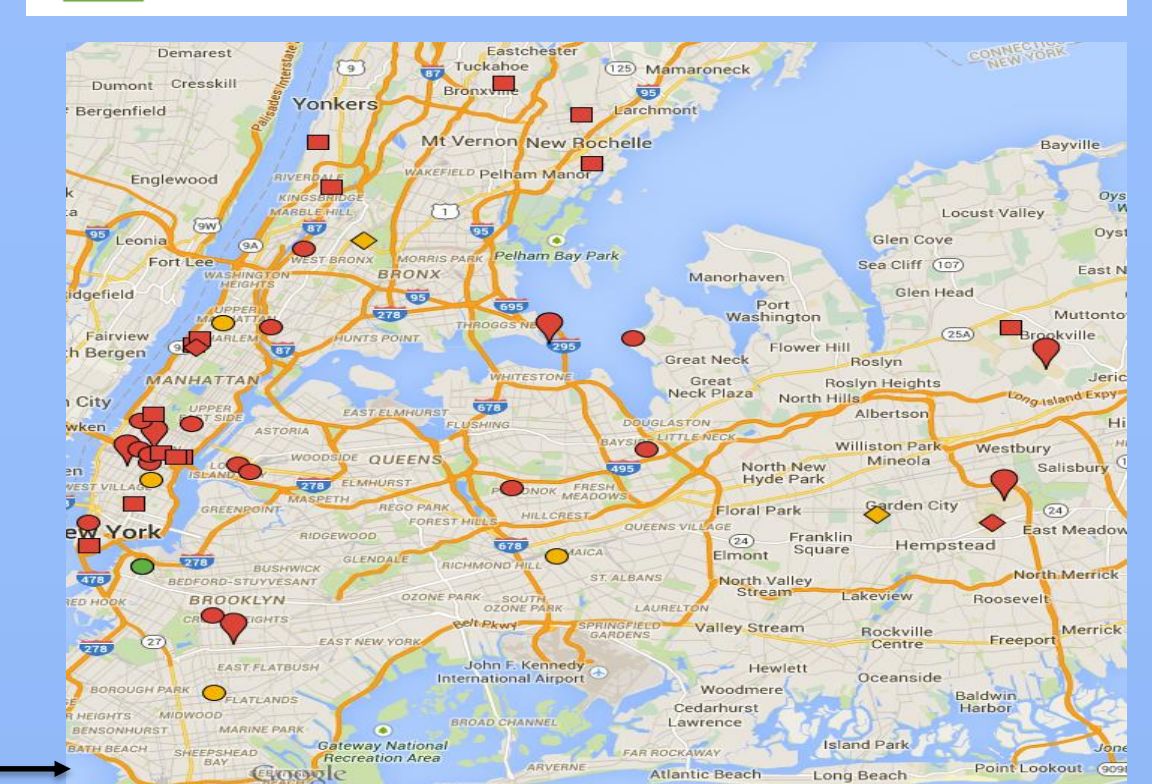
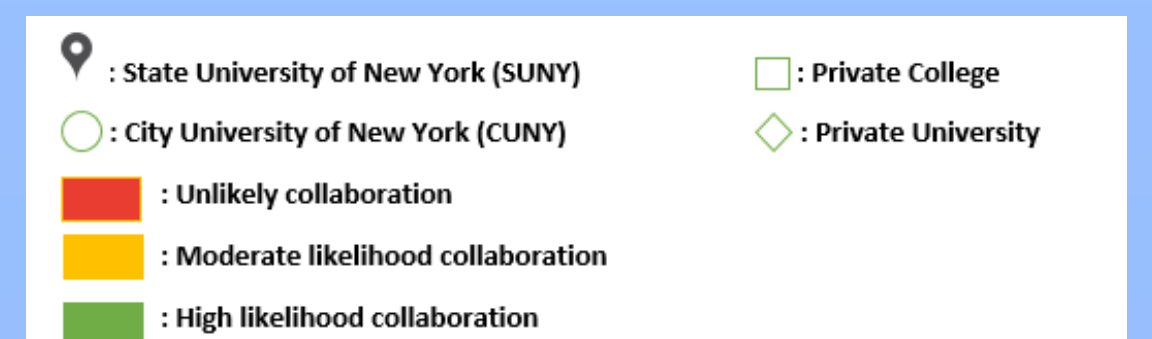


Figure 4: The map of distribution of universities in New York City

Type of education institutions in NY	# of institutions that have high likelihood collaborations	# of institutions that have moderate likelihood collaborations	Total number of faculties can be outreached
SUNY (66)	8	4	75
CUNY (24)	2	4	15
Private colleges (67)	0	1	1
Private Universities(17)	1	2	14
Total	11	11	105

Table 3: The number of faculty can be outreached in different education institutions in New York State

Government Sector Collaborations

- 1) National highway traffic safety administration (NHTSA)
 - National Advanced Driving Simulator (NADS) Research Uses



- 2) NYSTAR

- Matching Grants Leverage Program



- 3) AAA Foundation of Traffic Safety



- 4) NYS Department of Transportation/Department of Health
 - Rural Transportation Assistance Program (RTAP)



- 5) National Institute for Occupational Safety and Health (NIOSH)

- NIOSH Small Research Program (R03)
- NIOSH Exploratory/Developmental Grant Program (R21)



Impact

Since the current potential collaborations were identified, the actions below will be the next steps:

- 1) Contact with the institutions which have high priority collaboration relations and discover the potential usage of driving simulator with their missions.
- 2) Associate with the other faculties to come out possible collaboration and research title.
- 3) Determine the type of different government sector to cooperate depends on the area of research to be exposure.
- 4) Discover the potential collaboration in other state and internationally.

References

J.de Winter, P. van Leuween, and P. Happee. "Advantages and Disadvantages of Driving Simulators: A Discussion." Proceedings of Measuring Behavior. 2012.