Ministry of Science and ICT

IITP Institute of Information & Communications Technology Planning & Evaluation

APPLICATION FORM
(JOINT RESEARCH)
HIGH POTENTIAL INDIVIDUALS GLOBAL TRAINING PROGRAM)

AGREEMENT
As stated above, I submit this application form to IITP that conducts "High Potential Individuals Global Training Program" supported by Ministry of Science, ICT in South Korea. IITP may disclose the information below to the public for the purpose of providing information and matching a research partnership between your institute and a Korean university.   * IITP : Institute for Information & communications Technology Planning & Evaluation

Printed Name of Chief of Research	Kiho Lim	Date(mm-dd-yyyy)	02-12-2020
Signature of Chief of Research			

☞ *(Note)* *This application is to identify the willingness to participate in this research and to find a research partnership for research institutes in Korea. Therefore, in its sole discretion, it is acceptable to contain only minimal information. (max. 3 pages)*

1. Research Title	ADAS Sensor Information-based Security System for Smart Connected Vehicles						
2. Research Area	**A.I.**	**Big Data**	**Cloud Computing**	**Block Chain**	**AR/ VR**	**ICT/SW Convergence**	**Other ICT /SW**
	X	X				X	

3. Chief of research	Title	Assistant Professor	Conta ct	E-mail : limk2@wpunj.edu
	Name	Kiho Lim		Tel : +1-973-720-3033

4. Affiliation	Name	William Paterson University of New Jersey	Classif ication	(X) University ( ) Research Institute ( ) Industry ( ) ETC.

5. Capacity for students (5 or less)	5	**Support for students** *(all necessary)*	(X) Visa support (X) Research Mentoring (X) Research Space (X) Accessibility to Research equipment

6. Research Objective	The objective of this research is to develop an ADAS (Advanced Driver-assistance systems) sensor information-based security system for smart connected vehicles. The project will provide a prototype of security system that can protect smart connected vehicles against malicious attack, and can help autonomous driving by enhancing driver safety using deep learning based techniques on ADAS sensor data.
7. Research Summary	Recently, the automotive industry is undergoing major transformation with the emergence of autonomous cars, intelligent transportation systems, and vehicular networks. The National Highway Traffic Safety Administration (NHTSA) has announced the SAE Automated Driving Standard to describe the five different levels of autonomy in driverless cars. Since fully autonomous driving with level 4 or 5 requires the use of multiple sensor systems and inter-vehicular communication, automobile manufactures began to use various ADAS (Advanced Driver-assistance systems) sensors including radar, lidar, and camera systems for today's semi-autonomous driving. The road/traffic information is collected by the sensors on the moving vehicles and such information is used to provide enjoyable driving experience as well as driving safety. However, in order to achieve the fully autonomous driving, it is crucial to secure event-related messages between vehicles and between infrastructure and vehicles. Also, the autonomous driving system should be protected against attacks by malicious vehicles because they can cause financial loss and even threaten drivers' lives.
	To address various security issues mentioned above, this research leverages ADAS sensors equipped in modern vehicles, and will develop a sensor information-based security system for smart connected vehicles to secure inter-vehicular communication and authenticate vehicles. To efficiently manage and utilize the large size of sensor data (generated more than gigabytes per second), deep learning based techniques will be applied. This research project will provide a prototype of security system for smart connected vehicles that can provide secure vehicular communication and enhance driver safety in autonomous driving environment.
8. Need for funding from Korean government	$75,000 for three Korean students ($25,000 * 3) = $75, 000
9. Request for Korean Universities	The selection of students studying abroad should be conducted after mutual consultation, and please cooperate as much as possible to prepare for VISA.