



# 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

Dr. Jeong C. Seong

Date(mm-dd-yyyy)

01-31-2020

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)

<b>1. Research Title</b>	Discovery of Geospatial Big Data Research Trends, and Development of GIS-integrated Big Data Analytics						
<b>2. Research Area</b>	A.I.	Big Data	Cloud Computing	Block Chain	AR/VR	ICT/SW Convergence	Other ICT /SW
		X					
<b>3. Chief of research</b>	Title	Professor		Contact	E-mail : jseong@westga.edu		
	Name	Jeong Chang Seong			Tel : +1-678-839-4069		
<b>4. Affiliation</b>	Name	University of West Georgia		Classification	(X) University ( ) Research Institute ( ) Industry ( ) ETC.		
<b>5. Capacity for students (5 or less)</b>	2		<b>Support for students (all necessary)</b>		( X ) Visa support ( X ) Research Mentoring ( X ) Research Space ( X ) Accessibility to Research equipment		
<b>6. Research Objective</b>	Keywords are very important in bibliography and in web search environment. This project aims at (1) further developing the current IITP project of the conference keywords big data analysis with network analysis methods and Doc2Vec/Word2Vec algorithms, and (2) integrating geospatial big data with GIS and machine learning algorithms.						

**7. Research  
Summary**

Dr. Seong's Geospatial Big Data Analytics Lab (GBDAL) currently has multiple research projects that Korean graduate students may join and get trained with. With the 2019-2020 IITP High Potential Individuals Global Training Program (HPIGTP), Dr. Seong's lab has been successfully training two graduate students from South Korea since July 2019. One research paper was already published with a student as the first author, and at least two more research papers will be submitted to internationally renowned journals soon. Students presented preliminary research findings at the SEDAAG 2019 conference in November, and final results will be presented at two national conferences (2020 AAG and 2020 UKC). Tightly working with Dr. Seong, students learn not only collecting and analyzing geospatial big data, but also developing research manuscripts for international journals. University of West Georgia has provided two separate rooms for visiting graduate students with full support of J-1 visa, visiting scholar ID card, access to buildings and labs, sitting in GIS and machine learning courses in computer science and geoscience departments, office telephone, internet access, and computing equipment. During the second round of IITP HPIGTP, visiting graduate student scholars will receive the same benefit. Dr. Seong and Dr. Ana Stanescu will continue to work tightly with incoming graduate students so that they will acquire advanced big data analysis skills to a globally acceptable capacity.

In the second round of IITP HPIGTP, Dr. Seong's GBDAL lab, jointly working with Dr. Stanescu's machine learning lab, will focus on two sequential/connected projects. (1) The first is to further develop the first-round's HPIGTP project. Continuing the theme of first-round project will help train students with the accumulated know-how's about semantic network analysis in a more succinct and quicker manner. Particularly, students will work on discovering big data research trends in the geospatial data science field using semantic keywords network analysis. An effective keyword preprocessing algorithm will be developed too. Furthermore, students will participate in the development of a generic platform to process keyword datasets from diverse academic fields. (2) The second project is to develop a GIS-integrated, geospatial big data analytics. GIS stands for geographic information systems. Big datasets have frequently been analyzed from business, behavioral, engineering, or mathematical perspectives. Considering that most big datasets have locational information such as latitude and longitude, the integration of big data with GIS reveals distinctive geographic insights. Recently, Dr. Seong's GBDAL lab has acquired more than 1.6 million traffic violation records with geo-tagged locational information. The dataset will be coupled with GIS layers and be analyzed with predictive machine learning techniques in order to identify, for example, the relationship between tickets and community types like ethnically colored communities. Research findings will be presented at conferences and be submitted for publication to internationally renowned academic journals like the Journal of Informetrics.

This project will be a good opportunity for graduate students to discover geospatial big data research trends and to develop a case study with a real-world big dataset and multiple emerging data science technologies.

**8. Need for  
funding from  
Korean  
government**

Funding from Korean government will support Dr. Seong and Dr. Stanescu to lead the project and train Korean graduate student scholars. Handling geospatial big data will require purchasing necessary computing supplies and equipment too. Funding will also support travels for meetings and conference participations.

**9. Request  
for Korean  
Universities**

The selection of students studying abroad should be conducted after mutual consultation. Students need to have prior experience of using Python and R packages.



Ministry of Science and ICT



Institute of Information  
& Communications  
Technology Planning & Evaluation