# The GNU Dependable Systems Laboratory

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To produce international specialists in *concurrent software dependability* of safety-critical computing such as airbone software (ARP-4754, DO-297, ARINC-653, DO-178), the GNU Dependable Systems Laboratory (DS-Lab) has produced approximately forty masters for teachers as well as engineers, and ten doctorates for professors as well as researchers in (international) four-year universities, major industries, and research institutes, under the supervision of Professor Yong-Kee Jun.

## Research

The GNU DS-Lab is interested in dynamically detecting and healing concurrency bugs in the software on multi-cored systems, embedded systems, and distributed systems. The most notorious and mysterious concurrency bugs include race conditions, atomicity violation, and deadlocks. The research should contain a wide range of topics on dynamic analysis, which includes program monitoring, logical time, global states, and program visualization. In some topics regarding logical time and detection protocols, DS-Lab has been internationally recognized as the state-of-the-arts.

DS-Lab encourages every candidate in its master program to give a talk in an international conference; and requires every candidate in the doctorate program to publish either at least two papers in internationally prestigious journals or at least one paper in an ACM conference proceedings. These requirements have been proved successful to all of the eight doctorates who obtained their degrees from DS-Lab:

Dr. Dong-Gook Kim, NTSIT Co.
Dr. Hee-Dong Park, Joongbu University
Dr. Jeong-Si Kim, ETRI
Dr. Young-Cheol Kim, Korea Int'l University
Dr. So-Hee Park, JNU of Education
Dr. Mi-Young Park, Iowa State University
Dr. Young-Joo Kim, Texas A&M University
Dr. Byung-Chul Kim, STX Offshore & Shipbuilding
Dr. Mun-Hye Kang, Post Doctorate, DSLab.

Dr. Ok-Kyoon Ha, Research Fellow, GNU ERI.

In addition to the knowledge and academic skills, DS-Lab especially tries to cultivate the integrity and creativity of students, if he or she has *B* or above as an average credit of undergraduate major courses. It is said that integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful.

## Supervisor

The supervisor and director of DS-Lab is Professor Yong-Kee Jun who received his PhD degree in computer engineering from Seoul National University; his thesis was established under the powerful supervision of Professor Kern Koh. He performed his post-doctoral research in data race detection at University of California at Santa Cruz (UCSC), the United States, under the supervision of Professor Charles E. McDowell, an authority in the field. And, he was a research associate in Electronics and Telecommunications Research Institute (ETRI), Korea.

He is a full professor teaching courses on operating systems in the Department of Informatics that he founded. He had served as the vice-dean of GNU Academic Affairs, the first director of GNU Research Institute of Computer and Information Communication, and the first operating director of GNU Virtual College. Currently, he is the founding director of GNU Embedded Software Center for Avionics which is a national IT Research Center (ITRC).

Internationally, Professor Jun has been a professional member of ACM since 1994 and of IEEE Computer Society since 1982. He edited some special issues of international journals and refereed/chaired for scores of international conferences. Domestically, he served as a vice president of Korea Information Processing Society (KIPS), the founding chair of KIPS Youngnam Regional Society, a director of Korea Information Science Society (KISS), and a chair of KISS

Youngnam Regional Society. He is also listed in Who's Who in the World since the 21st edition, 2004 ☐