Report of Professional Leave

Applicant's name: Atsushi Inoue
Affiliation: Computer Science, SCES, CSHE
Period of this on-leave: Sept 2006 - August 2007
(3 quarters -- Fall06, Winter07, Spring07)

Project: A full-time professorship at Carnegie Mellon CyLab Japan, Kobe Japan in order to sharpen competence on Computational Intelligence and Cyber Security (See the attached application of this leave for more details).

List of accomplishment

Course Teaching (note. all are 15-week, master-level graduate courses):
(1) Fall 2006 14810 Applied Cryptography (newly developed and taught)
(2) Fall 2006 14740 Fundamentals of Telecommunication Networks (co-teaching)
(3) Spring 2007 95756 Information Security Risk Analysis (co-teaching)
(4) Spring 2007 95757 Information Security Policy and Management (co-teaching)
(5) Spring 2007 14747 Predictable Professional Performance (co-teaching)

Research Projects:
(6) AISEC (Artificial Intelligence in Security):
A Special Interest Group (SIG) consisting of four Japanese professors as well as affiliated researchers and students, who are dedicated to intelligent security technology development. The following activities and achievements were made during this professional leave:
- monthly meeting at Carnegie Mellon CyLab Japan, Kansai University and Hannan University
- summer workshop for discussions and experimental data collection
- computational experiments of various machine learning algorithms such as decision-tree learning, support vector machine, clustering, and neural networks
- formation of an official Special Interest Group within Japan Society of Fuzzy Theory and Intelligent Informatics (SOFT) [currently in the approval process]

(7) Global Information Assurance:
International collaborative efforts on issues associated with globalization of information assurance, e.g. social and cognitive analysis of security awareness among different countries, network traffic analysis among different countries, behavioral analysis of cyber trust among different countries, etc. The following activities were made during this professional leave:
- nomination of peer researchers from Carnegie Mellon University and Kyoto University
- NSF research proposal development (CyberTrust program)
- funding negotiations/meeting with Asian Office of Aerospace Research and Development within US Air Force Research Laboratory
"ANSIN" and Trust:
International collaborative efforts with Iwate Prefectural University on modeling trust in the network society and a further sophisticated concept, so-called "ANSHIN." The following activities were made during this professional leave:
- correspondence with Professor Yuko SJ Murayama at Iwate Prefectural University, the founder of "ANSHIN" model
- invitation of a research article to the special issue on "Security and Trust" (See (10)) of the Journal of Japan Society of Fuzzy Theory and Intelligent Informatics (SOFT) to Prof. Murayama and its publication
- organization of a short summer research bootcamp to be held at EWU in Summer 2008

Security Design Pattern:
A development of security design pattern at the lowest-level design (i.e. a complete detailed specification of function/method calls) of a software system.
- obtained a student internship position for Ms. Casey Purcell, a student of MSIT-IS at Carnegie Mellon CyLab Japan as well as a candidate of MSCS at EWU, from Washington State Digital Archives for her summer project.

Dissemination Projects:
(10) 2 book/journal editing
- served as the guest editor of the special issue on "Security and Trust" of the Journal of Japan Society of Fuzzy Theory and Intelligent Informatics (SOFT) [Notes. SOFT is the largest academic society of Fuzzy Theory in Asia/Pacific Rim. Japan is the leading country of Fuzzy Theory, founded by Professor Lotfi A. Zadeh at UC Berkeley in 1965, especially for their industrial and civil applications. This journal will be referred as SOFT Journal hereafter (*1).] This special issue was successfully published in June of 2007 (Vol 19, No 3) -- consisting of 7 articles, 67 pages total.
- Springer-Verlarg Lecture Note in Artificial Intelligence (LNAI) Series on "Computational Intelligence and Cyber Security and Trusts" [pending]

(11) 4 journal publications (Sept 2006 -- Aug 2007)
- "Inference Results for Fuzzy Quantified Natural Language Propositions Qualified by False and Symmetry between the Results," co-authored, published on Vol 18, No 5 of SOFT Journal (*1) in Oct 2006
- "An Inference Method for Fuzzy Quantified natural Language Propositions Based on New Interpretation of Truth Qualification," co-authored, published on Vol 19, No 3 of Journal of Advanced Computational Intelligence and Intelligent Informatics in Jan 2007
(12) 7 peer-reviewed/invited conference proceedings (2006 and 2007)
- "Computational Intelligence in E-Learning," published on the proceedings of the International Symposium on Advanced Intelligent Systems (ISIS07), Sokcho, S. Korea, 2007

(13) 7 invited/keynote lectures
- "Computational Intelligence and Cyber Security," presented as one of keynote speech for their 120th-anniversary event at Kansai University, Osaka, Japan, in Nov 2006
- "Security and Trust: Research Projects," presented at Iwate Prefectural University, Morioka/Takizawa, Japan, April 2007
- "Information Technology and Globalization at Universities," presented at Iwate Prefectural University, Morioka/Takizawa, Japan, April 2007
- "Study Abroad and Cross Cultural Communication," presented at Iwate Prefectural University, Morioka/Takizawa, Japan, July 2007
- "Database and Knowledge-based Systems," presented as 1-week intensive graduate-level course at Hannan University, Osaka, Japan, in July/Aug 2007
- "Computational Intelligence in E-Learning," presented as the invited keynote lecture at the International Symposium on Advanced Intelligent Systems, Sokcho, S. Korea, in Sept 2007

(14) 2 public seminars
- organized "Predictable Secured System Development" open seminar for Carnegie Mellon CyLab Japan in Apr 2007 (2 lectures, open discussion)
- organized "Toward Trustworthy Networks" open seminar for Carnegie Mellon CyLab Japan in Aug 2007 (2 lectures, open discussion)
Others:
(15) 2 training
- successful completion of Information Assurance Capacity Building Program
  at Carnegie Mellon University, Pittsburgh, PA, July 2007 (certification)
- successful completion of CISCO Professor Professional Security Development
  at Carnegie Mellon University, Pittsburgh, PA, July 2007 (certification)

(16) 3 visiting professorships
- Adjunct Faculty status at Carnegie Mellon University, Pittsburgh, PA
  (while the collaborative research project "Global Information Assurance"
  is active)
- Adjunct Faculty status at Hannnan University, Osaka, Japan
- Visiting Lecturer of Information Security Human Resources Training Programs,
  Info-Communication Security Human Resources Training Center,
  Hyogo Institute of Information Education Foundation,
  Kobe, Hyogo, Japan

(17) Recognition Award at the International Symposium on Advanced Intelligent
  Systems, Sokcho, S. Korea, Sept 2007

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