

ERCIM “Alain Bensoussan” Fellowship Scientific Report

Fellow: Dzmityr Kliazovich
Visited Location: VTT Technical Research Centre of Finland
Duration of Visit: 9 months

I - Scientific activity

During 9 months of the ERCIM fellowship at VTT, Dzmityr Kliazovich worked mainly within a framework of ITSE (Intelligent telecommunication systems with enhanced cognitive processing) and COMMUNE Celtic projects. His main responsibilities included contribution to joint publications, the design of hierarchical architecture for Network Expert System (NES), and analysis of the applicability of self-learning algorithms in control messaging systems. In addition, his fellowship work included carrying out field measurements for the development and validation of self-learning algorithms.

During this time Dr. Kliazovich enjoyed working with Seppo Horsmanheimo, the head of the group and his direct supervisor Dr. Pertti Raatikainen, and other members of the research unit. Creativity and productiveness of such collaboration resulted in a number of joint publications submitted to international journals and conferences.

A total of 4 publications (2 conference papers, 1 journal article, and 1 book chapter) have been produced during 9 months fellowship period spent at VTT. This is in addition to 5 publications (4 conference papers and 1 journal article) produced during the preceding 9 months spent at the University of Luxembourg. The Best Paper Award has been awarded to the work on Data Center Energy-efficient Network-aware Scheduling presented at the IEEE/ACM International Conference on Green Computing and Communications (GreenCom) in Hangzhou, China in December 2010.

From the career perspective, Dr. Kliazovich participated and presented his work in the following events:

- International Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks (CAMAD), Kyoto, Japan, June 2011.
- GreenDays @ Paris, Paris, France, June 2011.
- IEEE Global Communications Conference (GLOBECOM), Miami, FL, USA, December 2010.

In addition, he was a part of the organizing committee and Technical Program Committee (TPC) chair in the IEEE International Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks (CAMAD), Kyoto, Japan, June 2011.

II- Publication during fellowship

A total of 9 publications have been produced during ERCIM fellowship (6 conference papers, 2 journal articles, and 1 book chapter). In 7 of them Dr. Kliazovich appeared as a first author:

During ERCIM fellowship at VTT

- D. Kliazovich, T. Sutinen, H. Kokkonen-Tarkkanen, J. Makela, and S. Horsmanheimo, "Hierarchical Management Architecture for Multi-Access Networks," submitted to IEEE Global Communications Conference (GLOBECOM), Houston, Texas, USA, December 2011.
- D. Kliazovich, F. Granelli, and N. L.S. da Fonseca, "Survey on Signaling Techniques for Cognitive Networks," IEEE International Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks (CAMAD), Kyoto, Japan, June 2011.
- D. Kliazovich, Nelson L. S. Da Fonseca, and F. Granelli, "Cooperative Inter-node and Inter-layer Optimization of Network Protocols," Wiley, Cooperative Networking, 2011.
- D. Kliazovich, P. Bouvry, and Samee U. Khan, "DENS: Data Center Energy-Efficient Network-Aware Scheduling," to appear in Cluster Computing, special issue on Green Networks, 2011.

During ERCIM fellowship at the University of Luxembourg

- D. Kliazovich, P. Bouvry, Y. Audzevich, and S. U. Khan, "GreenCloud: A Packet-level Simulator of Energy-aware Cloud Computing Data Centers," IEEE Global Communications Conference (GLOBECOM), Miami, FL, USA, December 2010.
- D. Kliazovich, P. Bouvry, and S. U. Khan, "Data Center Energy-efficient Network-aware Scheduling," IEEE/ACM International Conference on Green Computing and Communications (GreenCom), Hangzhou, China, December 2010.
- D. Kliazovich, P. Bouvry, Samee U. Khan, "GreenCloud: A Packet-level Simulator of Energy-aware Cloud Computing Data Centers," Journal of Supercomputing, special issue on Green Networks, 2010.
- N. Malheiros, D. Kliazovich, F. Granelli, E. Madeira, and N. L. S. da Fonseca, "A Cognitive Approach for Cross-Layer Performance Management," IEEE Global Communications Conference (GLOBECOM), Miami, FL, USA, December 2010.
- P. Kiryowa, F. Granelli, and D. Kliazovich, "TCP Kikolo for Performance Improvement in High-speed Networks in presence of Packet Losses," IEEE International Workshop on Computer Aided Modeling, Analysis, and Design of Communication Links and Networks (CAMAD), Miami, FL, USA, December 2010.

III -Attended Seminars, Workshops, and Conferences

Dr. Kliazovich has attended the following conferences and workshops performing a presentation of his research achievements during his ERCIM Fellowship at VTT:

- "Survey on Signaling Techniques for Cognitive Networks," IEEE International Workshop on Computer-Aided Modeling Analysis and Design of Communication Links and Networks (CAMAD), Kyoto, Japan, June 2011.
- "Data Center Energy-Efficient Network-Aware Scheduling," GreenDays @ Paris, Paris, France, June 2011.
- "GreenCloud: A Packet-level Simulator of Energy-aware Cloud Computing Data Centers," IEEE Global Communications Conference (GLOBECOM), Miami, FL, USA, December 2010.