

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: Labelled Graph Strategic Rewriting - Applications to biological and social networks

Speaker: Helene Kirchner
 Research Director
 Inria

Date/Time: 3 June 2016, Friday, 02:00 PM to 03:30 PM

Venue: MR1, COM1-03-19

Chaired by: Dr Jaffar, Joxan, Professor, School of Computing
 (joxan@comp.nus.edu.sg)

Abstract :

The intense development of computing techniques and increasing volumes of produced data nowadays raise the need to model and analyse information that is complex due to massive and highly heterogeneous data; distributed and connected in networks; dynamic due to interactions, time, external or internal evolutions. We argue in this presentation that relevant concepts to address these challenges are provided by three ingredients: labelled graphs to represent networks of data or objects; rewrite rules to deal with concurrent local transformations; strategies to express control versus autonomy and to focus on points of interests. We illustrate the use of these concepts on biological networks and social networks generation and simulation.

Biodata:

Helene Kirchner is senior researcher at Inria, part-time working at the Department of European and International Partnerships.

She has obtained her PhD in Computer Science in 1982 and her Habilitation (These d'Etat) in 1985.

She entered CNRS in 1982 and became Research Director in 1995. After leading the Protheo project from 1997 to 2000, she took the Direction of the joint laboratory LORIA and of the INRIA Lorraine research center (2001-2007). From 2007 to 2010, she was Deputy Scientific Director at Inria. From September 2010 to 2015, she was Inria Scientific Director of the International Affairs Department.

Her research is concerned with the design and development of safe software: formal specifications, logic and automated deduction, program verification, with a special emphasis on deduction and computation by rewriting and strategies. Since 2005, she applies these techniques to the design and verification of security policies, and to the modeling of biochemical processes or social networks with graph transformations.

She is member of the IFIP WG 1.6 (Term Rewriting),
co-editor of Annals of Mathematics and Artificial Intelligence,
member of the editorial board of Computing and Informatics and of Logical Methods in Computer Science (LMCS).

Personal Web Page : <https://wiki.bordeaux.inria.fr/Helene-Kirchner>