Call for Participation

European School on Graph Transformation

Bremen (Germany)

March 2–7, 1998

Aims and Scope

Graph grammars originated in the late 60s, motivated by considerations about pattern recognition and compiler construction. Since then the list of areas which have interacted with the development of graph grammars has grown quite impressively. Besides the aforementioned areas it includes software specification and development, VLSI layout schemes, massively parallel computer architectures, database design, modeling of concurrent systems, logic programming, computer animation, developmental biology, music composition, visual languages, and many others. The area of graph grammars and graph transformation generalizes formal language theory based on strings and the theory of term rewriting based on trees. As a matter of fact within the area of graph grammars, graph transformation is considered a fundamental programming paradigm where computation includes specification, programming, and implementation.

The main goal of the School is to disseminate "the basic knowledge" about the area of graph grammars and graph transformation and to present in a systematic way the state of the art and the recent advances in the theory and applications of graph transformation systems. The aim is to bring together students, young researchers and senior scientists interested in the area. The expected audience for the School consists of two groups:

(i) participants from outside the area: these are the students and researchers who want to learn (for various reasons) about graph grammars and graph transformation,

(ii) participants from inside the area: these are students and researchers that already have some knowledge of graph grammars, but they are interested to get a more systematic insight into the area.

The objective of the School (especially as the first group is concerned) is to make the participants "literate" in the area of graph grammars and graph transformation. This means that, after the School, the participants will find it easier to follow basic literature, and to consider applications of graph grammars and graph transformations in their areas of interest. The program of the School covers main developments in both theory and applications of graph transformation.

Certificates

The School will issue certificates to acknowledge a successful participation.

Organization

The School, one of the main events organized by the TMR Research Network GETGRATS (General Theory of Graph Transformation Systems), is supported by the EC as a Summer School within the TMR Programme. Also, the ESPRIT Working Group APPLIGRAPH (Applications of Graph Transformation) participates in the organization of the School.

Program Committee

Michel Bauderon, Hartmut Ehrig, Dirk Janssens, Hans-Jörg Kreowski (Cochair), Ugo Montanari, Francesco Parisi-Presicce, Grzegorz Rozenberg (Chair)

Organizing Committee

Frank Drewes, Hans-Jörg Kreowski (Chair), Grzegorz Rozenberg

Grants

Grants to cover (parts of) the costs for travel and subsistence will be offered according to the regulations applying to Summer Schools in the TMR Programme of the EC.

Information

For more information please contact the organizers by email ({drewes,kreo}@informatik.uni-bremen.de) or look up http://www.informatik.uni-bremen.de/grp/ag-ti/getgrats.

Registration

To register for the School please return the form at the end before December 6, 1997. Pre-registrations (without obligation) are welcome at any time. The registration fee will be around DM 1200,- – DM 1300,-. This covers lodging (6–7 nights), full board, and the teaching material including the handbook.

Scientific Programme

The scientific programme consists of 4 parts:

Introductory Lecture provides an informal panoramic sketch of the area (by Grzegorz Rozenberg & Hans-Jörg Kreowski).

Basic Core covers basic approaches to defining graph transformations. Each of the following four approaches is covered by a strand of lectures.

(1) node rewriting (by Joost Engelfriet)
(2) (hyper)edge replacement (by Annegret Habel)
(3) logical descriptions (by Bruno Courcelle)
(4) algebraic approaches (by Andrea Corradini & Hartmut Ehrig)

Layer 1 consists of lectures on various ways of defining graph transformations not covered in the Basic Core, as well as various specialistic topics from the 4 strands of the Basic Core.

(1) term graph rewriting (by Detlef Plump)
(2) foundations of the PROGRES approach (by Andy Schürr)
(3) concurrency (by Dirk Janssens & Ugo Montanari)
(4) 2-structures (by Grzegorz Rozenberg)
(5) pullback-approach (by Michel Bauderon)
(6) high-level approaches (by Hartmut Ehrig & Francesco Parisi-Presicce)

Layer 2 consists of lectures covering various applications of graph transformation and topics strongly rooted in applications.

(1) term graph rewriting in functional programming (by Rinus Plasmeijer)
(2) the use of PROGRES in a software engineering environment (by Andy Schürr)
(3) modularization (by Gregor Engels)
(4) coordination (by Ugo Montanari)
(5) distributed algorithms (by Yves Métivier)
(6) visual design of distributed systems (by Gabriele Taentzer)
(7) image generation (by Hans-Jörg Kreowski)

Presentation of Tools

In addition to the scientific programme various systems and tools (PROGRES, AGG, GRAPH^{ED}, CLEAN, COLLAGE-VR, etc.) will be presented.

Teaching Material

- copies of transparencies, relevant papers, and lecture notes
- the Handbook on Graph Grammars and Computing by Graph Transformations, Volume 1: Foundations, World Scientific 1997

Registration form

I would like to ☐ pre-register / ☐ register for the *European School on Graph Transformation.*

Name: ______________________________

Position: ______________________________

Address: ______________________________

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email and fax: ______________________________

I need financial support: ☐ *yes* ☐ *no*

(Please return this form to Prof. Dr. Hans-Jörg Kreowski, Universität Bremen, Fachbereich 3, Postfach 33 04 40, D-28334 Bremen (Germany), email: kreo@informatik.uni-bremen.de, Fax: +49-421-218-4322)