IFIP TC1 Report 2024

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Aims

The aims of IFIP TC1 (Foundations of Computer Science) are:

- to support the development of theoretical computer science as a fundamental science that has similar scientific goals in understanding the information processing world as physics has in understanding the energy processing world and similar goals in developing methodology for science and technology as mathematics does;
- to support the development and exploration of fundamental concepts, models, theories, systems, and other basic tools and the understanding of laws, limits, and possibilities of information processing as well as to develop bridges with other sciences and their applications.

Organisation

TC1 consists of several working groups:

- WG 1.2 – Descriptional Complexity
- WG 1.3 – Foundations of Systems Specification
- WG 1.5 – Cellular Automata and Discrete Complex Systems
- WG 1.6 – Rewriting
- WG 1.7 – Theoretical Foundations of Security Analysis and Design
- WG 1.8 – Concurrency Theory
- WG 1.9/2.15 – Verified Software
- WG 1.10 – String Algorithmics & Applications
- WG 1.11/2.17 – Foundations of Quantum Computations, established in 2022

Three working groups have members based in Austria:

- Dr. Temur Kutsia, Johannes Kepler University (WG 1.6 member)
- Univ.-Prof. Dr. Aart Middeldorp, University of Innsbruck (WG 1.6 founding member)
- Univ.-Prof. Dr. Georg Moser, University of Innsbruck (WG 1.6 member)
- Assoc. Prof. Dr. Ana Sokolova, University of Salzburg (WG 1.3 member and WG 1.8 secretary)
- Assoc. Prof. Dr. René Thiemann, University of Innsbruck (WG 1.6 member)

Below I report on the 2024 activities of WG 1.6.

WG 1.6 – Rewriting

The annual meeting took place on July 1 in Nancy, as part of IJCAR (International Joint Conference on Automated Reasoning) 2024. The hybrid meeting was attended by 20 researchers, including five invited speakers:

- Claudia Faggian, Université de Paris, France
- Clemens Grabmayer, Gran Sasso Science Institute, Italy
- Santiago Escobar, Universidad Politécnica de Valencia, Spain
- Daniele Nantes, University of Brasilia, Brazil and Imperial College London, UK
- Uwe Waldmann, MPI Saarbrücken, Germany

The most visible activity of the working group is the International School on Rewriting (ISR). In August 2024 the school was organized in the Obergurgl University Center of the University of Innsbruck by the IFIP WG 1.6 members from Innsbruck:

http://cl-informatik.uibk.ac.at/isr24/

The school consisted of three parallel tracks:

A a comprehensive introductory course to first-order term rewriting accompanied with exercise sessions, for participants without previous exposure to term rewriting,

B a comprehensive introductory course to lambda-calculus and type theory accompanied with exercise sessions, for participants without previous exposure to lambda-calculus and type theory,

C a series of more advanced courses on recent developments and applications.

The courses were taught by leading experts in the field:

Frédéric Blanqui	Inria	track C
Ugo Dal Lago	University of Bologna	track C
Herman Geuvers	Radboud University Nijmegen	track B
Nao Hirokawa	Japan Advanced Institute of Science and Technology	track C
Cynthia Kop	Radboud University Nijmegen	track C
Aart Middeldorp	University of Innsbruck	track A
Niels van der Weide	Radboud University Nijmegen	track B
René Thiemann	University of Innsbruck	track C

The school was attended by 38 participants from 10 different countries.