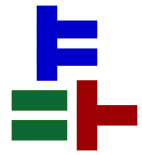

COST action CA20111 EuroProofNet

Work and budget proposal

for Nov 22 - Oct 23

Frédéric Blanqui

COST is supported
by the Horizon 2020
Framework Programme
of the European Union

Change proposals in Core group composition

WG2: P. Fontaine (Belgium), A. Steen (Luxembourg)
$\longrightarrow$ A. Steen (Luxembourg), P. Fontaine (Belgium)

WG3: Alicia Villanueva (Spain), Rodica Condurache (Romania)
$\longrightarrow$ Madalina Erascu (Romania), Alicia Villanueva (Spain)

WG4: Claudio Sacerdoti (Italy), Gilles Dowek (France)
$\longrightarrow$ Angeliki Koutsoukou Argyraki (UK), Claudio Sacerdoti (Italy)

young 50% women 50% ITC 32%

Change proposals in EuroProofNet rules

The Core Group can relocate budget up to 10,000 euros unused for already implemented activities to other upcoming or new activities (instead of 5,000 currently).

Research coordination objectives

1. Express new proof systems in the Dedukti logical framework
2. Promote the output of detailed, checkable proofs from automated theorem provers
3. Make techniques for program verification more effective and more accessible to all stakeholders
4. Gather proofs translated in Dedukti into a FAIR database
5. Provide tools for searching large libraries of formal proofs
6. Develop the use of artificial intelligence and machine learning techniques on proofs
7. Develop a modular theory of type theories
8. Develop the use of natural or controlled languages in proof systems

Capacity building objectives

1. Bring together members of the different communities working on proofs in Europe
2. Act as a stakeholder platform in the field of formal proofs from its theoretical grounds to its industrial applications
3. Create an excellent and inclusive network of researchers in Europe with lasting collaboration beyond the lifetime of the Action
4. Ease access to formal verification techniques in education and other areas of science
5. Actively support young researchers, the under-represented gender, and teams from regions with less capacity
6. Transfer knowledge in terms of expertise, scientific tools and human resources across the different disciplines and with industry
7. Prepare competitive EU researchers for a fruitful career in an international environment through intensive use of STSMs and joint educational programs with industry
8. Disseminate the results of the Action activities to the scientific community, the industry, the certification bodies, the European institutions and to the general public

Deliverables planned for Nov 22 - Oct 23

March 2023:

- Inventory of automated theorem provers producing proofs, description of proof formats, and inventory of checking tools for these proof formats
- Comparison of the approaches used in the international Software Verification competition SV-COMP
- Definition of a mathematical framework for modular reasoning about type theories and their extensions

September 2023:

- Release of software for translating proofs coming from important proof systems based on type theory like Isabelle, Agda, PVS, Lean or Minlog, to Dedukti and back
- Software prototype for the automated inference of program specifications as logical axioms
- Tools for managing the dependencies between proofs, and querying and searching the database

Goals for Nov 22 - Oct 23

1. Finish the inventory of the automated theorem provers producing proofs, the formats used, and the corresponding checking tools (deliverable planned for March 2023)
$\longrightarrow$ WG2 meeting

2. Write an inventory of the approaches used in the international Software Verification competition SV-COMP (deliverable planned for March 2023)
$\longrightarrow$ WG3 meeting + STSM?

3. Describe a mathematical framework for modular reasoning about type theories and their extensions (deliverable planned for March 2023)
$\longrightarrow$ WG6 meeting + publications

4. Provide tools for translating proofs from Isabelle, Agda, PVS or Coq to Dedukti and back (deliverable planned for Sep 2023)
$\longrightarrow$ Dedukti dev meetings

Goals for Nov 22 - Oct 23

5. Provide a software prototype for the automated inference of program specifications as logical axioms (deliverable planned for Sep 2023)
$\longrightarrow$ STSMs

6. Provide a tool for managing dependencies between proofs (deliverable planned for Sep 2023)
$\longrightarrow$ Dedukti dev meetings

7. Provide a tool for searching a database of proofs (deliverable planned for Sep 2023)
$\longrightarrow$ Dedukti dev meetings

8. Teach how to formalize mathematics using controlled natural languages
$\longrightarrow$ SONALF school

Goals for Nov 22 - Oct 23

9. Support young researchers from inclusive-target countries
$\longrightarrow$ conference grants

10. Inform EuroProofNet members of gender biaises and advertize the work of women
$\longrightarrow$ Women in EuroProofNet 2

11. Train teachers on the use of proof systems in education
$\longrightarrow$ School on teaching with ITPs

12. Discuss the existing and missing datasets for guided neuro-symbolic synthesis
$\longrightarrow$ workshop on datasets

13. Share practices on the integration of machine-learning techniques in automated theorem provers
$\longrightarrow$ workshop on efficient learning

Budget for Nov 22 - Oct 23

TOTAL: 108,700 $\longrightarrow$ 143,000 ($+31\%$)

propositions:

- STSMs: $20\% = 22{,}000 \longrightarrow 25\% = 35{,}000$
- conference grants for young ITC researchers: 3,000

Proposed events for Nov 22 - Oct 23

WG	event	place	date	days	budget
*	teaching w/ITP	Strasbourg	Jul	5	14560
*	WEPN	Bialystok	Aug	1	8400
1,2,4	dk dev 1	Val d'Ajol	Jan	3	11669
1,2,4	dk dev 2	Val d'Ajol	Apr	3	11669
2	meeting	Gif-sur-Yvette	Jul	1	6150
3	meeting	Timisoara	Feb	2	10800
4	meeting	Cambridge	Jun	2	10800
5	SONALF	Bonn	Sep	5	11096
5	datasets	Prague	May	2	5300
5	learning	Prague	May	1	4150
6	meeting	Utrecht	May	2	10450