



**Formal Methods Europe**  
**Minutes of the 81st meeting (AGM)**  
**Hybrid meeting held online and**  
**on the premises of the**  
**British Computer Society**  
**25 Copthall Avenue, London, UK,**

**26 March 2025**  
[www.fmeurope.org](http://www.fmeurope.org)

*Present at the meeting were:*

- Ana Cavalcanti (Chair) [U. York]
- Maurice ter Beek [CNR-ISTI]
- Manuel Capel [U. de Granada]
- Gustavo Carvalho [U. Federal de Pernambuco]
- John Cooke [Loughborough U.]
- Lars-Henrik Eriksson (Secretary) [Uppsala U.]
- Alessandro Fantechi [U. Firenze]
- Carlo A. Furia [U. della Svizzera italiana]
- Stefania Gnesi [CNR-ISTI]
- Klaus Havelund [JPL]
- Einar Broch Johnsen [U. Oslo]
- Cliff Jones [Newcastle U.]
- Keith Lines [National Physical Laboratory] (Not an FME member)
- Luigia Petre [Åbo Akademi]
- Nico Plat [Thanos]
- Matteo Rossi [Politecnico di Milano]
- Augusto Sampaio [U. Federal de Pernambuco]
- Marielle Stoelinga [U. of Twente]
- Laura Semini [U. of Pisa]
- Tim Willemse [TU Eindhoven]
- Jim Woodcock [U. York]

**1      Welcome and agree upon agenda**

Ana Cavalcanti welcomed the members present. The agenda was agreed upon.

**2      Minutes of the previous meeting**

The minutes of the December 2024 meeting were approved.

**3      Annual report for 2024**

Lars-Henrik Eriksson presented the board's management report for 2024 (attached to the minutes). The meeting approved the report.

**4      Financial report for 2024**

Nico Plat presented the board's financial report for 2024 (attached to the minutes). The meeting approved the report.

**5      Report by the Financial Committee**

The Financial Committee members, Simon Bludze and Gustavo Carvalho, had individually checked the FME accounts. Their reports are attached to the minutes. The meeting discharged the Treasurer from his responsibilities during this period. Ana Cavalcanti thanked the Treasurer and the Financial Committee for their work.

**6      Elections**

**a) Two board members, to serve until the 2027/2028 AGM.** In accordance with FME statutes, Nico Plat and Einar Broch Johnsen stepped down as Board members. They had indicated their willingness to serve a further term until the 2028 AGM. There were no other candidates to take these positions. Nico and Einar were reelected unopposed. Einar was elected with the proviso that if the meeting approved of the extension of the board to six members, then his term would end at the 2027 AGM.

**b) Extension of the board to six members and election of a sixth board member to serve until the 2028 AGM.** The meeting approved of the board's proposal to extend the board to six members and elected Carlo Furia to fill the new position.

**c) Two (or more) Financial Committee members for 2025.** According to new FME statutes, two Financial Committee members should be elected for a period of one year. Gustavo Carvalho and Keith Lines offered to take this role. They were elected unopposed.

#### **7 Status report on FM'26**

Maurice ter Beek reported on the progress of FM'26, to be held in Tokyo on May 18-22, 2026. General Chair is Fuyuki Ishikawa, PC co-chairs are Augusto Sampaio and Marielle Stoelinga. TAP will be a track of FM, with its own PC. For the first time the proceedings will be Open Source, as usual published by Springer.

#### **8 FormaliSE report**

Stefania Gnesi reported on the progress of FormaliSE 2025. The event will be held in Ottawa on April 27-28, as usual in conjunction with the International Conference on Software Engineering (ICSE 2025). 15 papers have been accepted, which is about 30% of submissions. There are fewer registrations than usual – about 35. ICSE also have fewer registrations – the publicity efforts seem to not have worked well this year.

#### **9 Book Review Committee report**

Matteo Rossi reported from the Book Review Committee. The presentation is attached to the minutes. Matteo will discuss with FACJ about an agreement to publish reviews.

#### **10 Communications Committee report**

Einar Broch Johnsen reported from the Communications Committee. The presentation is attached to the minutes.

#### **11 Industry Committee report**

Tim Willsemse reported from the Industry Committee. The presentation is attached to the minutes.

#### **12 Teaching Committee report**

Luigia Petre reported from the Teaching Committee. The presentation is attached to the minutes.

#### **13 Collaboration with BCS-FACS**

FME and BCS-FACS reasserted their mutual collaboration.

#### **14 Date and place of next meeting**

To be determined. Most likely online in December to decide on the budget and plans for 2026.

#### **15 Other Business**

Ana Cavalcanti reminded all committee chairs to keep the Communications Committee informed of their activities. Ana also mentioned that fake messages have been sent by someone trying to impersonate her.

(Lars-Henrik Eriksson)  
FME Secretary

(Ana Cavalcanti)  
FME Chair

# **Formal Methods Europe: Management Report for 2025**

## **The FME Board**

### **February 2025**

This report is a brief account of the association's activities between 1 January 2024 and 31 December 2024. FME Committees prepare separate reports on their activities.

#### **1. Board**

Board members during the period were Ana Cavalcanti (Chair), Maurice ter Beek (Symposia and Deputy Chair), Lars-Henrik Eriksson (Secretary), Einar Broch Johnsen (Communications), and Nico Plat (Treasurer).

#### **2. Membership**

On 31 December 2023 the association had 480 members in total, an increase of 26 from the previous year.

373 members (78%) come from academic institutions, 71 (15%) from commercial institutions and 36 members (7%) have no affiliation or come from other institutions (e.g. non-academic research institutes). The proportion of commercial members shows a slightly decreasing trend over time. Roughly 72% of the members are based in Europe. Only a small part of the membership (estimated at 10%) is actively involved in FME activities.

103 of the members have a suspended status because of unknown contact details. (They could not be reached for a membership details update request in 2016.) With the new statutes adopted during 2023, these memberships could be terminated.

#### **3. Symposia/Conferences**

##### *FormaliSE*

FormaliSE was held in Lisbon, Portugal, on April 14-15 in conjunction with ICSE 2024. The General Chairs were Stefania Gnesi (CNR-ISTI) and Nico Plat (Thanos). The PC chairs were Carlo A. Furia (Università della Svizzera Italiana) and Antónia Lopes (University of Lisbon). Raúl Pardo (IT University of Copenhagen) and Tom van Dijk (University of Twente) were Artifact Evaluation Chairs. Abhishek Tiwari (University of Southern Denmark) and Paulo Canelas (Carnegie Mellon University) were Social Media and Web Chairs. Cristian Cadar (Imperial College London) and Claire Dross (Adacode, Paris) were Invited Speakers. 14 papers (34%) were accepted out of 41 submissions. With 60 attendees, it was the most successful FormaliSE edition so far.

##### *FM Symposium*

The 26th International Symposium on Formal Methods was held at the Politecnico di Milano, Italy, on September 9th-13th. Together with colocated events, there were over 300 attendees in total with a daily average of around 200.

There were 5 colocated conferences, 5 colocated workshops and several tracks. The main track had 168 submissions of which 44 (26%) were accepted. Submissions and acceptance figures for the embedded systems track were 10 and 6, for the industry day 17 and 6 and for the tutorials 14 and 10. The Journal First track had 5 papers. These were the second highest submissions figures ever for an FM Symposium, surpassed only by the 1999 World Congress.

The proceedings amounted to 1200 pages in 2 volumes. This was the first time the FM proceedings were Open Access.

The General Co-Chairs were Matteo Pradella and Matteo Rossi (both of Politecnico di Milano). The PC chairs were André Platzer (Karlsruhe Institute of Technology) and Kristin Yvonne Rozier (Iowa State University). The invited speakers were David Basin (ETH Zürich), Hadas Kreiss-Gazit (Cornell University), Marta Kwiatkowska (University of Oxford) and Byron Cook (University College London and AWS). See information below about the FME Fellow Award.

#### **4. Publications**

The FME website was maintained by Einar Broch Johnsen. The FME mailing lists were maintained by Lars-Henrik Eriksson and hosted by Uppsala University

FME maintains a list of FM events including important dates. The list is available on the FME web site.

The FME events@fmeurope.org e-mailing list is available for announcements related to established conferences in the FM area as well as to events organised or sponsored by FME and for positions related to FM.

FME also has a presence on the LinkedIn web site and has a YouTube channel.

#### **5. Grants and sponsorships**

Sponsorships were granted to FMAS, and ABZ during 2024.

#### **6. Standing Committees**

FME currently has five standing committees: the Awards Committee (contact: Jose Nuno Oliveira), the Book Review Committee (contact: Matteo Rossi), the Communications Committee (contact: Einar Broch Johnsen), the Industry Committee (contact: Tim Willemse), and the Teaching Committee (contact: Luigia Petre).

#### **7. Industry-Research Collaboration**

FME has a Memorandum of Understanding with FMICS to collaborate in holding an annual joint industry-focussed event.

There is also a Memorandum of Understanding between FME and the British Computer Society Specialist Group on Formal Aspects of Computing Science (BCS-FACS) on holding an annual joint seminar.

#### **8. Meetings**

Four meetings were held in 2024. One in London on February 1, the AGM online on June 26, one on September 12 during the FM Symposium in Milan, and a fourth online meeting on December 13.

Additionally, the Board held 6 online board meetings.

#### **9. Awards**

At the FM Symposium in Milan, Jeannette Wing received the FME Fellowship Award.

## 10. Other activities

FME made an agreement with Springer about conditions for Open Access of FM Symposia proceedings until 2028.

FME had discussions with other FM events about collaboration or merging of events. Also, the FM Symposia are planned to be yearly events from 2026 on.

Signed,



ACavalcanti

Ana Cavalcanti



M. ter Beek

Maurice ter Beek



Lars-Henrik Eriksson



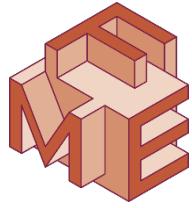
Einar Broch Johnsen

Einar Broch Johnsen



Nico Plat





## Financial Report 2024

5 February 2025  
Formal Methods Europe

Prepared by Nico Plat (Treasurer)

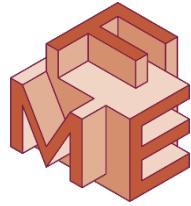
### Introduction

This document provides FME's financial results over the year 2024, compared to the 2024 budget as approved at the 77th<sup>th</sup> FME meeting, held on 1 February 2024 in London, UK, and online (minutes available from <http://www.fmeurope.org>).

The bank statements and cashbook of the association for 2024 have been reviewed by the independent financial examiners: Simon Bliudze and Gustavo Carvalho. Their reviews are attached.

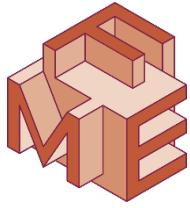
The treasurer asks for discharge of his duties for the financial year 2024.

Nico Plat  
Treasurer

**Approved Budget 2024 and Financial Report 2024**

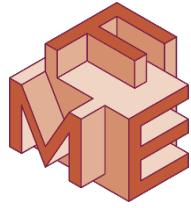
The table below presents the budget for 2024 (as approved by the membership at the Annual General Meeting 2024) and the financial results for 2024.

No.	Description	Budget 2024				Results 2024			
		Debit	Credit	Beginning	End	Debit	Credit	Beginning	End
01	Bank assets			€ 89.222,14	€ 85.922,14			€ 89.222,14	€ 93.451,82
<i>Administrative items</i>									
02	Interest received on deposit account		€ 1.000,00				€ 1.284,63		
03	Banking and organisational cost	€ 250,00				€ 205,41			
04	IT infrastructure	€ 250,00				€ 238,32			
<i>Operational items</i>									
05	Surplus FM 23 Lübeck			€ 7.200,00			€ 7.262,40	€ 7.200,00	
06	Surplus FM 24 Milan			€ 10.000,00			€ 3.000,00		€ 12.821,00
07	Open Access costs FM 24	€ 6.000,00							-€ 10.050,00
08	FormaliSE	€ 3.500,00				€ 1.679,18			
09	Sponsorships 2023			-€ 2.250,00			€ 1.400,00		
10	Sponsorships 2024	€ 3.500,00					€ 1.250,00		
11	Travel costs FME Board	€ 3.500,00					€ 1.965,77		
12	Miscellaneous	€ 250,00					€ 33,67		
13	Committee funding	€ 1.250,00							
14	Notary costs WBTR			-€ 750,00			€ 545,00	-€ 750,00	
15	<i>Subtotals</i>	€ 18.500,00	€ 11.000,00	€ 93.422,14	€ 85.922,14	€ 7.317,35	€ 11.547,03	€ 93.422,14	€ 94.522,82
16	Differences	-€ 7.500,00		-€ 7.500,00			€ 4.229,68		€ 1.100,68
17	<i>Totals</i>	€ 11.000,00	€ 11.000,00	€ 85.922,14	€ 85.922,14	€ 11.547,03	€ 11.547,03	€ 94.522,82	€ 94.522,82



Annotations:

- [01] Assets in the bank at the beginning and end of the year, projected and real.
- [02] Interest received on the savings account was higher than expected due to increased interest rates.
- [03, 04] Banking costs and IT infrastructure costs were in line with what was expected; it is noted though they are slowly increasing every year, mainly due to inflation.
- [05] The surplus of the FM 23 Symposium in Lübeck was received on FME's bank account.
- [06] The surplus of the FM 24 Symposium in Milan was much higher than expected: €15.821 instead of €10.000, due to the tremendous success of the Symposium. €3.000 has already been received, €12.821 is expected to be paid in 2025. See, however, also [07].
- [07] FM 24 was the first FM Symposium that published its proceedings as "open access", the costs for which were covered by FME for 75%. Originally estimated at €6.000, these costs were substantially higher (again) because of the success of FM 24: more papers were accepted than originally anticipated. The final sum of €10.050 will be compensated with the €12.821 (item [06]) that is still due from the FM 24 organization, leaving €2.771 still to be received from them in 2025.
- [08] Costs for FormaliSE were less than expected because only one of the General Chairs attended the event.
- [09] Sponsorships 2023. A remaining amount was paid for FMAS 2023.
- [10] Sponsorships 2024: An amount of €1.250 was paid for ABZ 2024. A remaining amount of €1.700 will be paid for FMAS 2024 in 2025.
- [11] Travel costs for the FME Board were less than expected, even though two physical meetings were held in this year: one in London and one in Milan.
- [12] A small amount was paid to cover costs made for the FME Award.
- [13] FME's committees required no funding in 2024.
- [14] A final amount of €545 was paid to our notary for the revision of FME's statutes.
- [16] Differences between rows [17] and [15].
- [01, 17, column "Balance end of year"] Bank assets at the end of the year were €93.451,82 [01], or €94.522,82 on paper when taking debtors/creditors into account [17].

**Revised Budget 2025**

The budget as approved by the members was presented during the business meeting on 13 December 2024. Taking the results for 2024 into account, the revised budget is now as follows:

No.	Description	Budget 2025			
		Surplus and deficit		Balance	
		Debit	Credit	Beginning	End
[01]	Bank assets			€ 93.451,82	€ 73.922,82
	<i>Administrative items</i>				
[02]	Interest received on deposit account		€ 1.500,00		
[03]	Banking and organisational cost	€ 300,00			
[04]	IT infrastructure	€ 300,00			
	<i>Operational items</i>				
[05]	Surplus FM 24 Milan			€ 2.771,00	
[06]	FormaliSE	€ 4.000,00			
[07]	Sponsorships 2024			-€ 1.700,00	
[08]	Sponsorships 2025	€ 3.500,00			
[09]	Know-FM	€ 10.000,00			
[10]	Travel costs FME Board	€ 2.500,00			
[12]	Miscellaneous	€ 250,00			
[13]	Committee funding	€ 1.250,00			
[14]	<b>Subtotals</b>	€ 22.100,00	€ 1.500,00	€ 94.522,82	€ 73.922,82
[15]	Differences	-€ 20.600,00		-€ 20.600,00	
[16]	<b>Totals</b>	€ 1.500,00	€ 1.500,00	€ 73.922,82	€ 73.922,82

**END OF REPORT**

**3rd of February, 2025**

**To Lars-Henrik Eriksson,**

Secretary of the Association FORMAL METHODS EUROPE (FME)

**Re FME Independent Financial Examiner Report for 2024**

Dear Dr. Eriksson,

I hereby certify that I received from the FME Treasurer the following documents for the independent examination of the quality of the financial records of the Association with respect to the year 2024:

- FME cash book of the year;
- the statements of the general bank account over 2024;
- the statements of the savings bank account over 2024;
- a report relating the approved budget for 2024 to the actual spending.

Upon a careful inspection of the documents, I have found no discrepancies or irregularities.

- The financial information is consistent across all documents.
- All transactions fit with the aims of the Association.

Therefore, I recommend that the FME members accept the Treasurer's financial report, and discharge him of his duties for the year 2024.

Yours sincerely,

Dr. Gustavo Henrique Porto de Carvalho  
Lecturer, Centro de Informática (CIn)  
Universidade Federal de Pernambuco (UFPE)

Av. Jornalista Aníbal Fernandes, s/n - Cidade Universitária  
50.740-560 - Recife - PE, Brazil  
Telephone number: + 55 81 2126-8430  
Email: ghpc at cin.ufpe.br

Lille, 02<sup>nd</sup> of February, 2025

**To Whom It May Concern**

**Subject:** FMEurope Independent Financial Examiner report

I hereby certify that I have received from the FMEurope Treasurer the following documents for the year 2024 for the examination of the quality of the financial records:

- the cashbook of the year
- the statements of the general bank account (including balances at beginning and at end of the year)
- the statements of the savings bank account (including balances at beginning and at end of the year)
- a report relating the approved budget for 2024 to the actual spending

Upon inspection of these documents, I have found no discrepancies or irregularities. In particular,

- the financial statement accurately reflects the underlying administration
- all transactions fit with the aims of the FMEurope association

Therefore, I recommend that the FMEurope members accept the Treasurer's financial statement and discharge him of his duties for the year 2024.

Simon Bliudze   
Junior Researcher  
(Chargé de recherche de classe normale)

# Book Review Committee

FME AGM  
March 23<sup>rd</sup>, 2025



# Goal



- provide to the FM community high-quality reviews of books on topics of interest to the community
- reviews highlight the strengths and weaknesses of the book, to help researchers who are looking for reference texts in their areas of interest



# Committee

- Simon Bliudze (INRIA Lille, FR)
- Wan Fokkink (Vrije Universiteit Amsterdam, NL)
- Constance Heitmeyer (Naval Research Laboratory, US)
- Einar Broch Johnsen (University of Oslo, NO)
- Matteo Rossi (Politecnico di Milano, IT)

- [bookreview@fmeurope.org](mailto:bookreview@fmeurope.org)
- <https://fmeurope.org/book-review/>





# Procedures



- BRC members select books of interest, then ask esteemed colleagues to review them (or review them themselves)
- reviews are not anonymous
- published on FME website, but also possibly on Formal Aspects of Computing journal
  - <https://fmeurope.org/categories/bookreviews/>
- Committee meets every 3 months via conference call



# Status

- 1 review published last fall, and sent to FAoC for publication in the journal
- 1 review in the final stages of being produced
- 2 reviews to be launched shortly
- News of reviews spread through FME mailing lists





# **FME Communications Committee: Report on Activities 2024**

Einar Broch Johnsen, Univ. of Oslo, Norway

March 26, 2025

# FME Communications Committee

- **Established:** October 2018.
- **Aim:** to support the dissemination of material about formal methods as well as FME activities.

- **[Andrea Bombarda](#),**  
University of Bergamo, Italy

- **[Carlo A. Furia](#),**  
Università della Svizzera italiana,  
Switzerland.

- **[Einar Broch Johnsen](#) (chair),**  
University of Oslo, Norway

- **[Matt Luckuck](#)**  
University of Nottingham, UK

- **[Lina Marsso](#)**  
University of Toronto, Canada

- **[Claudio Menghi](#),**  
University of Bergamo, Italy

- **[Pedro Ribeiro](#),**  
University of York, UK.

**Role:** [Andrea](#) will liaise with the Industry Committee

**Role:** [Carlo](#) will work on the communications strategy and guidelines for conferences and liaise with board members in charge of conferences.

**Role:** [Einar](#) maintains the FME website, Twitter account, and LinkedIn group. He works on an overall policy document on communications.

**Role:** [Matt](#) will liaise with the Awards Committee, the Book Review Committee, and the Industry Committee. Website integration.

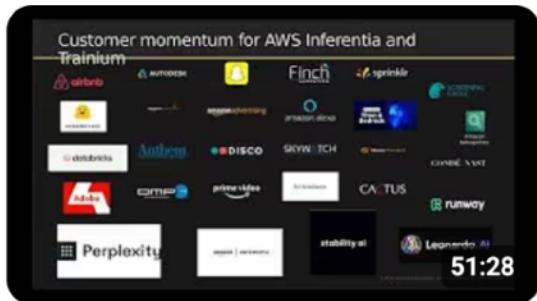
**Role:** [Lina](#) is working on webpage for summer schools and dissemination channels for academic positions in formal methods.

**Role:** [Claudio](#) will liaise with the Teaching Committee. Claudio has also developed a questionnaire to collect feedback from FM conferences.

**Role:** [Pedro](#) is in charge of communications for FME business meetings. Pedro is also in charge of FME's videos and YouTube channel.

# Activities in 2024

- **Standard activities:** liaise with the other committees of FME
- **YouTube channel:** keynotes at FMAS 2024, FM 2024 (in progress)
- **Publicity plans and social media** for FormaliSE 2024 and FM 2024
- **Communication strategy:** document in progress
- **FME website:** 10 new posts, pages updates, maintenance
- **FME website:** integration with committee web pages
- **Social Media:** LinkedIn(2100+), Twitter(750+), Mastodon(50+), BlueSky (70+)



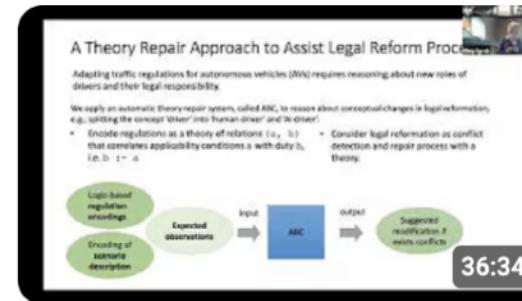
FMAS2024 | Prof. Daniel Kröning - Proof for Industrial Systems using...

119 views • 2 months ago



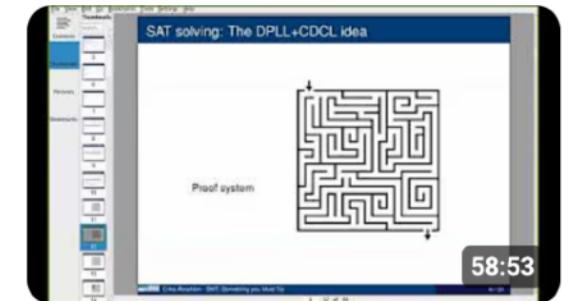
FMAS2024 | Dr. Silvia Lizeth Tapia Tarifa - Self-Adaptation in...

69 views • 2 months ago



FMAS 2023 | Prof. Alice Miller - Formal methods within the TAS...

74 views • 2 months ago



FMAS 2023 | Prof. Erika Ábrahám - SMT: Something you Must Try

49 views • 2 months ago



# FME Industry committee

AGM report

26 March 2025

# Composition of committee

- Tim Willemse (chair) – Netherlands
- Jeroen Keiren (secretary) – Netherlands
- Carla Ferreira – Portugal
- Leo Freitas – UK
- Mario Gleirscher – Germany
- Cláudio Gomes – Denmark
- Peter Höfner – Australia
- Kristin Yvonne Rozier – USA
- Cristina Seceleanu – Sweden



# Industry committee Objectives

- Increase the awareness & use of FM in *industry*
- Increase awareness of industrial use of FM in *our community*
- Increase ties between our community and industry

# Activities in 2024

- WG on *FM in industry series* (Cristina, Leo, Mario, Tim)
- WG on *FM tool videos* (Carla, Cláudio, Jeroen, Peter)
- Involved in organising Industry Day@FM/FMICS
- Started working on integrating websites of FMEurope & FME-IC
- Maintained lists of FM *tools, users* and *vendors*
- Several members involved in white paper *Formal Methods in Industry*

# Working Group on *FM in Industry Series*

*Aim: promote the interaction between FM community and industry*

- Format of series: online sessions of ~45 minutes with speaker from industry
- Audience: fellow academics *and* interested industrial partners
- InFM talks organised in 2024:
  - Frank Zeyda (Galois, US): '*Rigorous Digital Engineering with Formal Methods: a personal perspective*'
  - Daniel Fredholm (Prover Technology, Sweden): '*Formal Verification in the Railway Domain*'
  - Leo Freitas (ScubaTx, UK): '*Digital Twins for Organ Preservation Devices*'
  - David Delmas (Airbus, FR): '*Formal Verification of Avionics Software*'

# 2025 Activities Industry Committee

- Maintain lists of tools/users/vendors and continue InFM series
  - Suggestions for speakers can be sent to [t.a.c.willemse@tue.nl](mailto:t.a.c.willemse@tue.nl)
  - Currently contacting various companies for talks
- Follow up FM Tool Videos:
  - Record at least one video of tool demonstration
  - Investigate whether there is a demand for such material (e.g. by tracking the downloads)
- Pick up in due time:
  - Archive of industrial case studies
  - Monitor trends in industry
- Currently working together with Comm<sup>2</sup> to integrate website into FMEurope site
  - Aim to finish by mid April (see next slide for preview)
  - Improves advertising/disseminating activities

# Website integration

(work in progress)

 Formal Methods Europe

About FME Committees Formal Methods Events FME Awards

Search

Awards Committee

Book Review Committee

Communications Committee

Industry Committee

Teaching Committee

## FME Industry Committee

The FME Industry Committee aims to support the infusion of formal methods into industry as to the usability of various methods in practice. The committee's objectives are to:

1. increase the use and awareness of formal methods in industry.
2. increase academic awareness of industrial use of formal methods.
3. promote the collaboration between the formal methods community and industry.

To this end, the committee organises talks and tracks the industrial adoption and offering of formal methods.

### The InFM Sessions

InFM is a series of online talks, organised by the committee and is aimed at people working in industry wishing to learn from others applying Formal Methods at industrial scale. The talks are also highly recommended to academics interested in applying and improving their methods, or seeing them applied. See the [InFM](#) page for upcoming and past talks.

### Formal Methods and the Industry

The committee aims to inform the industry about [which formal methods are available](#), which companies [use formal methods](#), and which companies [offer formal methods](#) and consultancy. This [video](#) contains an interview with three industrial engineers on the topic: Formal Methods in the Industrial Domain.

### Industry Committee Members

- [Carla Ferreira](#), NOVA University of Lisbon, Portugal
- [Leo Freitas](#), Newcastle University, UK
- [Mario Gleirscher](#), University of Bremen, Germany
- [Cláudio Ângelo Gonçalves Gomes](#), Aarhus University, Denmark
- [Peter Höfner](#), The Australian National University (ANU), Australia
- [Jeroen Keiren](#), Eindhoven University of Technology, The Netherlands (*Secretary*)
- [Kristin Yvonne Rozier](#), Iowa State University, USA
- [Cristina Seceleanu](#), Mälardalen University, Sweden
- [Tim Willemsen](#), Eindhoven University of Technology, The Netherlands (*chair*)

### Contact

Please contact us if you would like to contribute, by sending an email to [industry@fmeurope.org](mailto:industry@fmeurope.org).

Share

RECENTS

 NEWS  
CALL FOR NOMINATIONS:  
EDITOR-IN-CHIEF FORMAL  
ASPECTS OF COMPUTING  
2025-03-01

 MEETINGS  
FME ANNUAL GENERAL  
MEETING 2025 &  
FME/BCS-FACS TALK BY  
MAURICE TER BEEK  
2025-02-19

 MEETINGS  
80TH FME MEETING, 13  
DECEMBER 2024  
2024-12-10

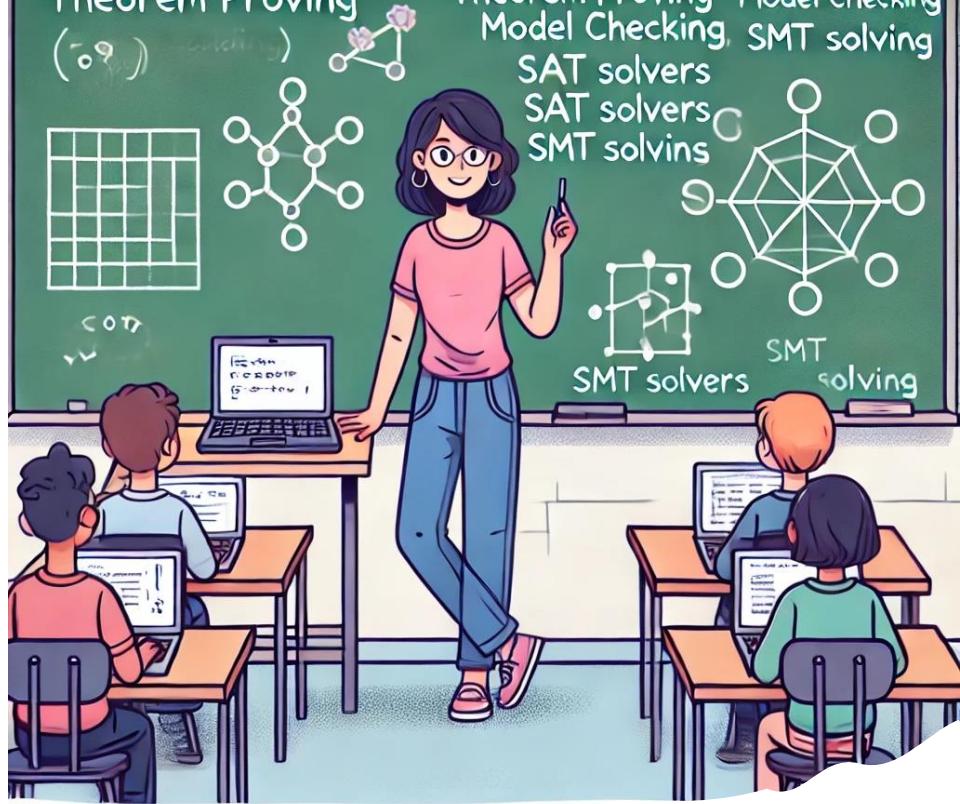
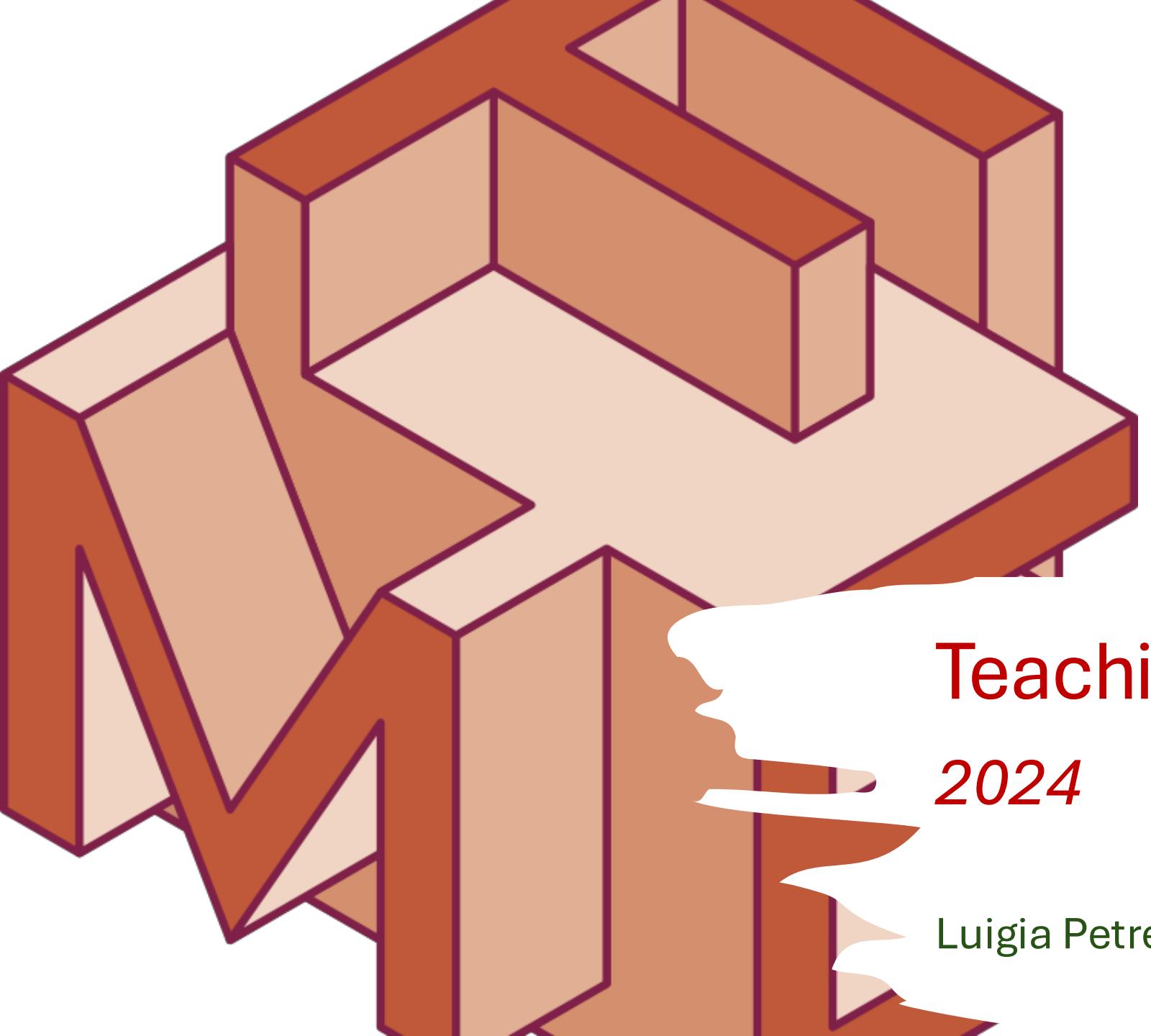
 CURRICULA  
DOES EVERY COMPUTER  
SCIENTIST NEED TO  
KNOW FORMAL  
METHODS?  
2024-10-02

 BOOK REVIEWS  
BOOK REVIEW:  
UNDERSTANDING  
PROGRAMMING  
LANGUAGES  
2024-10-01



BECOME A MEMBER

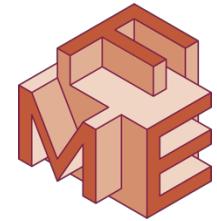




# Teaching Committee 2024

Luigia Petre, ÅA University, Finland

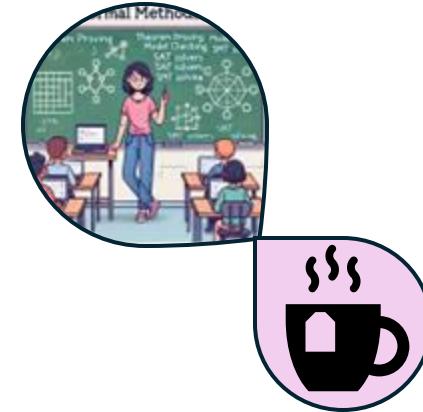
# Who are we? → FME's Teaching Committee



- Brijesh Dongol, University of Surrey, UK
- Catherine Dubois, ENSIIE, France
- João F. Ferreira, IST, University of Lisbon, Portugal
- Alexandra Mendes, FEUP, University of Porto, Portugal
- Luigia Petre (chair), Åbo Akademi University, Finland
- Leila Ribeiro, Federal University of Rio Grande do Sul, Brazil
- Pierluigi San Pietro, Politecnico di Milano, Italy
- Emil Sekerinski, McMaster University, Canada
- Graeme Smith, The University of Queensland, Australia

# What do we do?

- **FMTea workshop** on teaching Formal Methods
  - 2019, 2021, 2023, 2024
  - [fmtea.github.io/](https://fmtea.github.io/)
- Collect Formal Methods courses taught worldwide
- "Monthly" tutorial series
  - 21 speakers, next one on Friday, March 28, 2025
- Work on a Curriculum of Formal Methods in undergraduate/graduate Computer Science studies



# FMTea 24, proceedings in LNCS 14939

1. Quality of contributions (7) → very good
  - essentially, only established academics are submitting
  - many FM groups worldwide once had a paper in FMTea
  - Invited paper: André Platzer, Karlsruhe Institute of Technology, Germany
    - *The Significance of Symbolic Logic for Scientific Education*
2. Turnout → great (17-22 people at all times)
  - nice number of senior colleagues (not authors) **in audience**=> discussions
3. FMTea Expo
  - setup → not ideal
    - only one of three groups could use the big screen
    - one group had a micro-projector
    - one used their laptop
    - Good interactions
    - Efforts to promote Expo to FM attendees
      - only FMTea participants were at the Expo

# Database of FM courses

github.com/fme-teaching/fm-courses/issues

fme-teaching / fm-courses

Type  to search

Issues 96

Pull requests Discussions Actions Projects Wiki Security Insights Settings

Filters  is:issue is:open

Labels 265 Milestones 0 New issue

96 Open 7 Closed

Author Label Projects Milestones

- Software Quality Finland  
#103 opened 4 days ago by luigipetre
- Tools for Reliable Software Construction Finland  
#102 opened 4 days ago by luigipetre
- Critical Systems  
#101 opened on Jul 19 by ghpc
- Introduction to Formal Methods in Software Engineering Canada  
#100 opened on Jun 12 by FM-CONU
- Software Engineering 2 Italy  
#99 opened on May 15 by dinitto
- Formal Method in Software Engineering United States  
#98 opened on May 10 by klaeuer
- Formal Methods United States  
#97 opened on Apr 19 by mctague434
- Formal Methods in Software Engineering Portugal

fme-teaching.github.io

Home Objectives Curriculum Inspiration FM Courses Events Members Meetings Tutorials Contact

## FM Courses

Our searchable database of formal methods courses is [available online](#). You can use the form below to add a new course.

### Submit a new course

Once you submit your course, an external Github page will open. **To confirm your submission, click the button *Submit new issue*.**

If you can't find a concept or tool in the list below, you can manually add them after submission, using the Github interface.

Course name

**FME Education Course Database**  
Maintained by the [Formal Methods Teaching Committee](#)

Add new course

1 Per Page: 24

Courses (3)

Search ...

Year/Level

All

Topics

All  
Abstract Interpretation (0)  
Ada (0)  
Aliasing Issues (0)  
Alloy (0)  
Applied Formal Methods (2)  
Automated Reasoning (1)  
Automation (0)  
Axiomatic Semantics (0)  
Axiomatisation (0)  
B Method (0)  
Behavioural Equivalences (0)

Software Engineering 2  
Year/Level: Unknown

Contact  
Elisabetta Di Nitto & Matteo Camilli & Matteo Giovanni Rossi  
Institution  
Politecnico di Milano  
Country  
Italy  
Course concepts  
Distributed Systems,Linear Temporal Logic (Ltl),Modelling,Software Architecture,Software Verification,Specification  
Languages/Tools  
Alloy,Uml

Formal Methods  
Year/Level: MSc

Contact  
Roberto Sebastiani  
Institution  
University of Trento  
Country  
Italy  
Course concepts  
Applied Formal Methods,Automated Reasoning,Labelled Transition Systems,Logic,Linear Temporal Logic (Ltl),Model Checking,Sat,Smt,Software Verification/Theorem Proving,Timed Automata,Temporal Logic  
Languages/Tools  
Minisat,Nusmv,Smt-Lib

Formal methods for concurrent and real-time systems  
Year/Level: Unknown

Contact  
Dino Mandrioli  
Institution  
Politecnico di Milano  
Country  
Italy  
Course concepts  
Logics For Specifying Systems,Hoare Logic,Timed Petri Nets,Trio,Metric Temporal Logic,Real-Time Systems,Applied Formal Methods  
Languages/Tools  
Zot

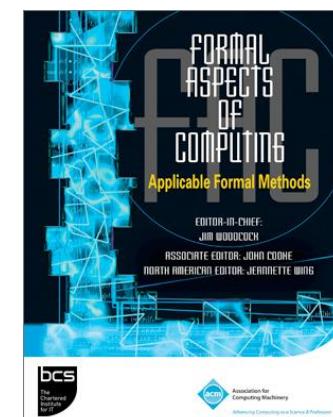
# Tutorial Series

1. March 28, 2025: [Prof Peter-Michael Osera](#), Grinnell College, US: **Formal Verification and Foundations: Better Together!**
2. February 28, 2025: [Prof Marielle Stoelinga](#), University of Twente, The Netherlands: **Life long learning – experience with educational programs for professionals**
3. September 27, 2024: [Prof Rosemary Monaghan](#), Maynooth University, Ireland: **Teaching Dafny at undergraduate and MSc level on Irish and Erasmus+ European Degree programmes**
4. May 24, 2024, 3 pm CEST: [Prof Tiziana Margaria](#), University of Limerick, Ireland: **Teaching Formal Methods in Germany vs. Ireland: experience from two very different systems.**
5. March 28, 2024, 3pm CET: [Prof Wolfram Kahl](#), McMaster University, Canada: **Teaching with CalcCheck.**
6. March 1, 2024, 10 am CET!: [Prof Carroll Morgan](#), University of New South Wales, Australia: **Teaching formal methods informally: a report from the front line.** The recording of Prof. Morgan's lecture is [here](#). A few screenshots from the lecture can be seen [here](#).
7. January 26, 2024, 3pm CET: [Prof Alcino Cunha](#), University of Minho ([Department of Informatics](#)), Portugal: **Teaching Alloy with Alloy4Fun in Software Engineering**
8. June 16, 2023, 3 pm CEST: [Prof Laura Kovács](#), Vienna University of Technology ([TU Wien](#)), Austria: **Teaching Formal Reasoning at TU Wien.**
9. May 26, 2023, 3 pm CEST: [Research Director Thierry Lecomte](#), [ClearSy](#), France: **Teaching and Training in Formalisation with B.**
10. April 28, 3, 2023 pm CEST: [Associate Prof Stefan Hallerstede](#) (Aarhus University, Denmark): **A guide to Not teaching Formal Methods.**
11. March 31, 3, 2023 pm CEST: [Associate Prof Emil Sekerinski](#) (McMaster University, Canada): **Teaching Concurrent Programming.** 2022:
12. December 9, 2022, 3 pm CET: [Principal Research Engineer Markus A. Kuppe](#), (RiSE group at Microsoft Research, US): **Stories from the trenches: Teaching the TLA+ specification language in Industry.**
13. October 28, 2022, 3 pm CEST: [Dr Allan Blanchard](#) ([CEA-LIST](#), France): **Formal methods for beginners and for C programs - Using Frama-C and its WP plug-in for teaching.**
14. September 30, 2022, 3 pm CEST: [Prof Michael Leuschel](#) (Heinrich-Heine-University Düsseldorf, Germany): **Teaching Formal Methods and Theoretical Computer Science with ProB.**
15. August 26, 2022, 3 pm CEST: [Dr Robert Lewis](#) (Brown University, US): **Teaching the theory and practice of proof assistants with Lean.**
16. July 29, 2022: [Prof Erika Abraham](#) (RWTH Aachen University, Germany): **Automatic exercise generation for satisfiability checking.** The recording of Prof. Abraham's lecture can be seen [here](#). A few screenshots from the lecture can be seen [here](#). In the lecture, Erika presents her course on satisfiability checking, that includes both SAT and SMT. This is an elective course. In 2008.,
17. June 17, 2022: [Dr Tim Nelson](#) (Brown University, US): **Building Formal Methods Classes for Everybody**
18. (Thursday!!) April 28, 2022, 3 pm CET: [Prof. Jeremy Gibbons](#) (University of Oxford, UK): **How to Design Co-Programs.**
19. February 25, 2022, 3 pm CET: [Prof Shriram Krishnamurthi](#) (Brown University, US): **From Tests to Properties: Property-Based Testing Using Relational Problems.**
20. December 10, 2021, 9am CET: [Assoc Prof David Pearce](#) (Victoria University of Wellington, New Zealand): **Teaching Software Verification with Whiley.**
21. October 29, 2021, 3pm CET: [Dr Ran Ettinger](#) (Ben-Gurion University, Israel): **Teaching Cantor's theorem, a pumping lemma, and the derivation of a heapsort algorithm using Dafny.**
22. September 24, 2021, 3pm CET: [Prof Sandrine Blazy](#) (University of Rennes 1, France): **Why3 tool for deductive program verification.**

# ACM Curriculum



- New edition since January 2024
  - 17 knowledge areas (KA)
- Formal Methods appear as elective topics in
  - Fundamental of Programming Languages (KA)
  - Software Engineering (KA)
- Special Issue on Education appeared (3 papers, 35 authors)
  - February 2025
  - Papers advocate the promotion of FM as knowledge area
    - On Formal Methods Thinking in Computer Science Education
    - Does Every Computer Scientist Need to Know Formal Methods?
    - Formal Methods in Industry



# FME Guidelines to FM as Knowledge Area

- Create our version of FM as a knowledge area
  - Called “**FM4All**”
  - FME-endorsed + financed
- ACM curriculum → “living” curriculum
  - Continuous updates as needed
  - Process still unclear
  - We believe two issues are essential
    - New suggestions have to integrate with existing curriculum
      - Or suggest what to take out to make space for them
    - Community should enforce the new suggestions

# FM4All people

- Layers of involvement
  - Core committee → 5-6 people responsible for first draft
    - Luigia Petre, Brijesh Dongol, (?), ...
  - Working group → open to anyone interested
    - The bigger the better
  - Advisory Committee
    - People in key roles who can support our work
      - Byron Cook, Rustan Leino, Leslie Lamport, Jeanette Wing, Moshe Vardi, Anyndia Banerjee, ...
      - FME Fellows
      - ...

# Action Plan Timeline

- → April 2025
  - Form core committee for curriculum development
- April-June 2025
  - Create initial content, superpose onto CS2023
- 2025-2027
  - Present work progress biannually at major conferences
  - Get feedback from community
  - Integrate feedback
- 2028
  - Publish research, expand industry collaboration

# On hold

- Erasmus +
  - Create teaching resources (“capsules”)
    - Example: <https://enactest-project.eu/resources/project-results/>
- Erasmus Mundus
  - MSc programs in certain topics
  - Students take courses in a few universities
    - grants
- Courses database
  - Our database as a course resource?

# A Book Series in FM?

- Inspiration from here
  - <https://softwarefoundations.cis.upenn.edu>
  - Software Foundations series → broad introduction to mathematical underpinnings of reliable software
    - 100% formalized and machine-checked with Coq
- We want a resource (series) that is evolving with its topics
  - Online components
  - Taxonomy
  - Historical perspective to be included
  - (solved) exercises