Formal Methods Europe
Minutes of the 68th meeting
Held during FM'19 in Porto, Lisbon
9 October 2019
www.fmeurope.org

The meeting was also webcast.

Present at the meeting were:

FME members:

- Yamine Aït Aneur [IRIT/INP Toulouse]
- Bernhard Beckert [Karlsruhe Institute of Technology]
- Andrew Butterfield [Trinity College, Dublin]
- Ana Cavalcanti (Chair) [U. York]
- Davide Deharbe [CLEARSY]
- Lars-Henrik Eriksson (Secretary) [Uppsala U.]
- Alessandro Fantechi [U. Firenze]
- Marie Farrell [U. Liverpool]
- Peter Gorm Larsen [Aarhus U.]
- Marie-Claude Gaudel [U. Paris-Sud]
- Stefania Gnesi [ISTI-CNR]
- Klaus Havelund [NASA/JPL]
- D. Randolph Johnson [Arundel System Logic]
- Einar Broch Johnsen [U. Oslo]
- Cliff Jones [Newcastle U.]
- Matt Luckuck [U. Liverpool]
- Diego Marmsoler [TU München]
- Claudio Menghi [U. Luxembourg]
- Dominique Méry [U. de Lorraine/LORIA]
- Ugo Montanari [U. of Pisa]
- José Nuno Oliveira [U. of Minho]
- Luigia Petre [Åbo Akademi U.]
- Nico Plat [Thanos]
- Etienne Prun [CLEARSY]
- Pedro Ribeiro [U. York]
- Matteo Rossi [Politecnico di Milano]
- Augusto Sampaio [U. federal de Pernambuco]
- Cristina Seceleanu [Mälardalen U., Sweden]
- Maurice ter Beek [ISTI-CNR]
- Jan Tretmans [Radboud U.]
- Jim Woodcock [U. York]
- Heike Wehrheim [Paderborn U.]
- Naijun Zhun [Inst. of Software, Chinese Academy of Sciences]

Others:

- Tony Aiello [AdaCore]
- Rahma Ben Ayed [IRT Railenium]
- Alexandra Halchin [RATP, France]
- Kenza Kraibi [IRT Railenium]
- Taro Kurita [Sony]
- Mariano Moscato [National Institute of Aerospace, USA]
- Cesar A Munoz [NASA]
- Etienne Prom [CLEARSY]

- Silvia Lizeth Tapia Tarifa [U. Oslo]
- Jaco van de Pol [Aarhus U.]

Apologies had been received from: Dino Mandrioli,

1 Welcome and agree upon agenda
Ana Cavalcanti welcomed the members present. The agenda was agreed upon.

2 Invitation to join FME
All non-members present were invited to join FME.

3 Minutes of the previous meeting and review of actions
The minutes of the previous meeting (2019 AGM) were made available too short a time before this meeting. The decision on approval was deferred to the next meeting.

Action 67/1: Ana Cavalcanti and Matteo Rossi to discuss the Book Review Committee procedures.
Done.

Action 67/2: Klaus Havelund (Industry Committee) and Luigi Petre (Teaching Committee) to liaise on information about the use of FM.
Done.

4 Status report on FM'2019
José Nuno Oliveira reported on FM'2019 and the FMWEEK. For the first time, the FM symposium has a "journal-first" session with presentations of previously published journal papers. 39 regular papers, 3 "journal-first" papers, 7 I-day papers and 10 Doctoral Symposium papers have been accepted. There are 186 registrations, but the actual numbers of attendants can be higher as participants in parallell FMWEEK events can also attend.

FMWEEK includes 8 other conferences. 18 workshops and 5 tutorials are organized as satellite events. FMWEEK has a total of 380 papers/talks and 610 participants from 44 countries.

5 Status report on FM'2021
FM'2021 will be held in Beijing, China, on (tentatively) May 9-14, 2021, organised by the Institute of Software of the Chinese Academy of Sciences. Naijun Zhun reported on the current state of planning. See attachment.

6 FormaliSE
Stefania Gnesi and Nico Plat reported on FormaliSE 2019. See attachment.

7 Committee reports
Matteo Rossi reported on the Book Review Committee.

Jim Woodcock reported on the Awards Committee. See attachment. He will now step down as chair of that committee. Ana Cavalcanti thanked Jim and the committee members for their work.

Einar Broch Johnsen reported on the Communications Committee. See attachment. If you have any ideas about spreading information, please contact Einar!

Klaus Havelund reported on the Industry Committee. See attachment. The committee has set up a web site (https://fme-industry.github.io). FME should have a list of formal methods. Everyone is asked to contribute.

Luigia Petre reported on the Teaching Committee. The FMTea workshop was a success with 45 registered participants and more actually present. The course database (https://fme-teaching.github.io/courses/) now has 54 courses.

8 Journal-first track partnerships

Ana Cavalcanti reported that FM'19 has three papers in the new "journal-first" track. The FME board has been uncertain about a partnership with Science of Computer Programming given the publisher's stance on subscription fees and open access. After discussion, the meeting had no opposition to joining in a partnership with SCP.

9 FM'2018 survey

Ana Cavalcanti reported on the survey about the FM'18 participation in FLoC in Oxford. The turnout of the survey was modest. The general feeling was that participation in FLoC was a positive experience but should not be the norm.

10 Gold Open Access for FM'2021 proceedings

PC co-chair for FM'21, Marieke Huisman, has proposed Gold Open Access for the FM'21 proceedings. Discussion. Cliff Jones observed that the academic community will have access anyway. Jim Woodcock suggested paying for open access only to papers that are not already open, e.g. through institution repositories. A handful of participants in the meeting said they would be prepared to pay €100 extra in registration fees for Gold Open Access. A suggestion was made to publish proceedings through Dagstuhl rather than Springer.

11 Date and place of next meeting

The next meeting will be the 2020 AGM. The board was tasked with deciding on a time and place.

12 Other Business

There was no other business.

Summary of open actions

None!

FM 2021

Beijing, China, May 9th-14th, 2019

Naijun Zhan

State Key Laboratory of Computer Science,
Institute of Software, Chinese Academy of Sciences

Outline

- Introduction to Beijing
- Introduction to ISCAS
- Organization team
- Tentative schedule
- Logistics

Beijing: some tourist places

- Forbidden City



Beijing: some tourist places

- Heaven Temple



Beijing: some tourist places

- Summer Palace



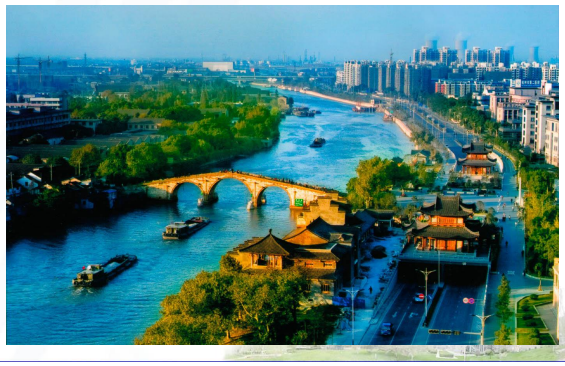
Beijing: some tourist places

- Great Wall



Beijing: some tourist places

- Grand Canal



Beijing: an overview

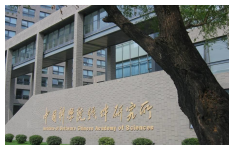
- The capital of People's Republic of China, the second largest Chinese city by urban population after Shanghai, the nation's political, cultural, and educational center.
- Seven UNESCO World Heritage Sites—the Forbidden City, Temple of Heaven, Summer Palace, Ming Tombs, Zhoukoudian, and parts of the Great Wall and the Grand Canal— all tourist locations.
- Beijing is the most important transportation hub in mainland China in air, rail and road transportation, very convenient arrive from/depart to major cities in the world through two modern passenger airports.

Outline

- Introduction to Beijing
- **Introduction to ISCAS**
- Organization team
- Tentative schedule
- Logistics

ISCAS overview: place and pictures





- ISCAS is located in the Software Park of Chinese Academy of Sciences, the east side of great ZhongGuanCun area, which is considered as the Silicon Valley of China.







ISCAS overview: history and mission

- It was founded in March 1985, formerly known as the software laboratory of the Institute of Computing Technology, Chinese Academy of Sciences
- ISCAS is a national research institute specializing in the theoretical research of computer science and the development of software high technologies

- **Objective: Fundamental Research + High Technology + Application Development**
- **Mission : Scientific Research + Technology Transfer and Knowledge Dissemination + Talent Training**

ISCAS overview: staff and students

- **ISCAS has 695 employees**
  - 3 academicians of Chinese Academy of Science
  - 1 academician of the Third World Academy of Science
  - 73 research professors
  - 135 associate research professors and senior engineers
- **There are 452 graduate students, including 182 PhD candidates, and 14 post-doctors**
- **Investment companies employ more than 10000 people**

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Outline

- Introduction to Beijing
- Introduction to ISCAS
- **Organization team**
- Tentative schedule
- Logistics

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Organization Team

- **General Chair**
  - Huimin Lin (Chinese Academy of Sciences, China)
- **PC Chairs**
  - Marieke Huisman (University of Twente, Netherlands)
  - Corina Pasareanu (NASA, US)
  - Naijun Zhan (Chinese Academy of Sciences, China)
- **Journal-first Track Chairs**
  - Eerke Boiten (De Montfort University, UK)
- **Industry Day Chairs**
  - Erika Abraham (RWTH Aachen University, Germany)
  - Yang Liu (Nanyang Technological University, Singapore)
- **Doctorial Symposium Chairs**
  - Wolfgang Ahrendt (Chalmers University of Technology, Sweden)
  - Ji Wang (National University of Defence Technology, China)

Formal Methods Europe

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Organization Team

- **Workshops Chairs**
  - Carlo A. Furia (Università della Svizzera Italiana, Swiss)
  - Lijun Zhang (Chinese Academy of Sciences, China)
- **Tutorials Chairs**
  - Luigia Petre (Åbo Akademi University, Finland)
  - Tim A.C. Willemse (Eindhoven University of Technology, Netherlands)
- **Publicity Chairs**
  - Eunsuk Kang (Carnegie Mellon University, US)
  - Jun Pang (University of Luxemburg, Luxemburg)
- **Finance Chair**
  - Shuling Wang (Chinese Academy of Sciences, China)
- **Local organizers**
  - Naijun Zhan (chair), Bai Xue, Bohua Zhan, Zhilin Wu, Andrea Turrini, David Jansen, Peng Wu, … (Chinese Academy of Sciences, China)

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Outline

- Introduction to Beijing
- Introduction to ISCAS
- Organization team
- **Tentative schedule**
- Logistics

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Tentative important dates

- **Paper Submission**
  - **November 12, 2020**
- **Paper Notification**
  - **January 2021**
- **Final Version**
  - **March 2021**
- **Conference**
  - **May 9th-14th, 2021**

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Tentative schedule

Sunday May 9	Monday May 10	Tuesday May 11	Wednesday May 12	Thursday May 13	Friday May 14
Tutorial					
Workshops					Workshops
		FM Conferences			
Co-located events					Co-located events

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Outline

- Introduction to Beijing
- Introduction to ISCAS
- Organization team
- Primary schedule
- **Logistics**

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Social events

- **Excursion to Great Wall or Forbidden City**



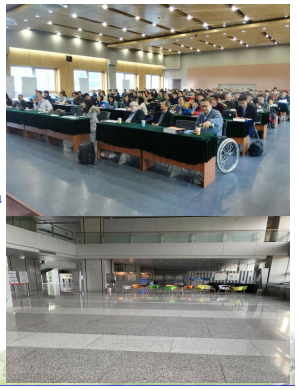


Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Logistics

- **The conference will take place in Building 5 of the Software Park**
- **Lunch will be provided by the canteen of our institute**
- **There are several 4-star and 5-star hotels near to our institute (within 2 km), including Parkplza (4*), Jinyi Hotel (4*), Crown Plaza (5*), Junma International Hotel (4*), Liaoning Plaza (5*), Vision Hotel (4*) etc. The agreement prices vary from 80 USD to 150 USD**



Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

Registration

Description	Non-student		Student	
	Early	Late	Early	Late
Conference+ workshops (6 days)	600 euro	700 euro	300 euro	350 euro
Conference only (3 days)	450 euro	550 euro	250 euro	300 euro
Tutorial/workshop (per day)	150 euro	200 euro	100 euro	150 euro
Industrial day alone	150 euro	200 euro	50 euro	100 euro
Extra LNCS proceedings	50 euro			
Extra conference dinner	50 euro			

Formal Methods Europe

ISCAS 中国科学院软件研究所 Institute of Software, Chinese Academy of Sciences

See you in Beijing! May 9th-14th, 2021

Most recent update can be found at

http://formalmethods2021.csp.escience.cn/dct/page1

Report about FormaliSE 2019: 7th International Conference on Formal Methods in Software Engineering

Monday, May 27, 2019, Montreal, Quebec, Canada

Abstract: FormaliSE 2019 was a fruitful conference, co-located with the 41st International conference on Software Engineering (ICSE). This event brought together formal methods researchers and practitioners from diverse laboratories, countries and fields, which efficiently triggered great discussions. The conference blended thirteen presentations and a keynote by Dr. Jeffrey Joyce on the effective role that formal methods play in the certification of safety-critical systems, such as airborne software. The takeaway of this conference is mainly new and original contributions, but also ideas and connections between participants which may lead to future works.



Figure 1: Photo of the participants to the FormaliSE 2019 conference

Formal Methods (FM) provide means to improve the software quality but they are still not widely used in industrial software development. The FormaliSE conference aims at bringing a closer integration of formal methods in Software Engineering (SE). Therefore, it gathers various researchers and practitioners who can explain the significant benefits of formal methods, especially by increasing the quality of various software systems.

The conference kicked off with a speech by *Stefania Gnesi*, the general co-chair. Stefania welcomed the participants to the conference and thanked the Formal Methods Europe (FME) organization for their funding and support. She also invited the attendees to join the FME community and to subscribe to their mailing list. Later on, she presented the agenda of the day, which contained fourteen talks distributed in four sessions. The talks included eleven full papers presentations, two short papers presentations and one keynote.

The talks of this conference ranged from formal methods for IoT and machine learning to certification of airborne software. This range shows the large applicability of FM to SE.
• *Omar Al-Bataineh* from *Nanyang Technological University* talked about a methodology to verify the shortest and longest execution time of a distributed protocol.
• *Ajay Krishna* from *Inria* presented a formal approach to ensure a correct composition of

objects and a reliable deployment of an IoT application.
• *Dmitry Ivanov* from the *Hamburg University of Technology* presented an approach on analyzing the battery utilization for programs and identifying its worst case.
• *Ebru Aydin Gol* from the *Middle East Technical University* proposed a new method to reduce the number of clocks of timed automata, in order to improve their performance.
• *Jeffrey Joyce*, who is the co-founder and managing director of a Vancouver-based engineering consultancy, *Critical System Labs Inc. (CSL)*, gave a keynote entitled "The Benefits of (having doubts about) Formal Methods". He talked about several ways and domains for using formal methods. Also, the keynote session was interactive, as the audience got to propose ways of answering the doubts about formal methods.
• *Daniel Ratiu* from *Siemens Corporate Technology* talked about FASTEN, their extensible environment that integrates several formal languages, to help users efficiently specify and verify systems.
• *Taylor Johnson* from *Vanderbilt University* discussed their algorithms for computing the reachable set of a trained feed-forward neural network, in order to verify different safety requirements.
• *Maxime Cordy* from the *University of Luxembourg* explained how they apply sampling and statistical methods to check non-functional requirements of variability-intensive systems.
• *Matt Pedersen* from *UNLV* discussed how they translate a process-oriented language into Java code, then into CSP, and how they verify the behaviour of the Java code using FDR model checker.
• *Cláudio Belo Lourenço* from *LRI, Université Paris-Sud & Inria* presented a formalization of bounded model checking tools, to verify the soundness and completeness of their workflow.
• *Dirk Pattinson* from the *Australian National University*, presented a formal approach to design trustworthy and well-founded voting systems.
• Then, *Erick Raelijohn* from the *University of Montreal*, presented a vision for assisting developers by recommending temporal API usage patterns as part of an IDE.
• *Andreas Lööw* from *Chalmers University of Technology*, presented their proof-producing translator from the HOL theorem prover to Verilog.
• Last but not least, *Waqar Ahmad* from *Concordia University*, made a talk about the formalization of the importance measures using HOL.

Almost each paper was accompanied by a GitHub repository or a website which provide tools and datasets for further research, and promote open science. The presentations were clear, deep in details and also followed by relevant and interesting questions. Overall, the conference was very fruitful and brought new and original contributions. Moreover, it was a favorable environment for discussions and potential collaborations, during the sessions and the two coffee breaks.

Finally, *Nico Plat*, the general co-chair, closed the day with a stimulating discussion about the next steps for formal methods in SE. This discussion focused on two main questions:
• How to increase the impact of FM?
• What are the barriers of FM for SE?

A lot of ideas were proposed and discussed by the participants, namely:
• *Nancy Day* highlighted the problem of standardization and certification which remains unresolved in the domain.

• Since formal tools are still a barrier, *Matt Pedersen* proposed to stop using automated verification tools - where one button does everything - and adopt instead more of assistant tools.
• *Jeffrey Joyce* proposed the "cookbook" notion of readily usable formal methods for different problem domains. This cookbook aims to explain which formal tool and approach are appropriate for each kind of problem.

Before farewell, the general chairs invited the participants to submit their work to the next edition of FormaliSE and hoped they will see them next year at ICSE in Seoul, Korea.



Figure 2: Photo of the members of FormaliSE 2019 conference organizing and program committees

Stéphanie Challita,
Communications Officer at FormaliSE 2019

About the author *Stéphanie Challita* is a postdoctoral researcher at Inria Sophia Antipolis - Méditerranée within the Kairos research team. She obtained her PhD degree in computer science from the University of Lille in 2018. She prepared her thesis at Inria Lille - Nord Europe within the Spirals research team. Her thesis focused on automatically inferring models from Cloud APIs and reasoning over them. Her research is about Cloud Computing, Internet of Things, Model Driven Engineering and Formal Methods. For more information, see `http://researchers.lille.inria.fr/schallit/`.



Report of the FME Awards Committee

The committee discussed its business in this nomination cycle by email at the end of 2018 and the beginning of 2019.

Because 2019 is the year of the 3rd World Congress, we were asked to consider nominations for both the FME Fellowship and the Lucas Best Paper Award. We received by the deadline a large number of nominations for the FME Fellowship. Each submission nominated an outstanding individual, clearly well qualified against the published criteria. The successful candidate emerged from a constructive discussion.

We made our recommendation to the FME board, who approved the candidate. We were invited to write a suitable citation for publication and for the award ceremony.

We made another proposal to the board that we consider all nominees for at least three rounds of election. Strong candidates in this round will be automatically reconsidered for the next fellowship and the one after that. The board approved this proposal.

We also considered candidates for the Lucas Award for the most influential paper. We were asked to consider papers from the previous two World Congresses. We used the broad criterion of impact, taking into consideration evidence presented by members of the committee. We recommended a paper that appeared in the first World Congress in 1999. Again, we were invited to write a suitable citation.

Having completed a total of five awards, I feel that my work as awards committee chair is complete and I am stepping down. I'd like to thank the committee for all their hard work during my term of office.

Jim Woodcock

Report from the Industry Committee

Written by Klaus Havelund (chair)

The industry committee was initiated during December 2018. The aim of the committee is to support the infusion of formal methods into industry, as well as obtain feedback from industry as to the usability of various methods in practice.

Committee

The committee consists of the following people:

Nikolaj Bjorner, Microsoft Research, USA
Jonathan Bowen, London South Bank University, UK
Alessandro Cimatti, FBK Trento, Italy
Rance Cleaveland, Maryland University, USA
Jan Friso Groote, Eindhoven University, The Netherlands
John Hatcliff, Kansas State University, USA
Klaus Havelund, Jet Propulsion Laboratory/NASA, USA (**chair**)
Gerwin Klein, University of NewSouth Wales, Australia
Thierry Lecompte, ClearSy, France
Colin O'Halloran, D-RisQ Ltd., UK
Jan Peleska, Bremen University, Germany
Shaz Qadeer, Facebook, USA
Markus Voelter, Volter Consulting, Germany

Website

The industry subpage on the FME website is: http://www.fmeurope.org/industry.
That website points to the industry specific (Hugo) website: https://fme-industry.github.io.

At this point the website mainly contains an incomplete list of formal methods.

Comments

1. We support hosting all websites on github, using e.g. the static website generator Hugo. We would then convert our website to the chosen format.
2. We are adding formal methods to the list, but the question is whether such a list should be maintained at all, and whether it should be on the industry page if so.
3. We will add information on industry users of formal methods, case studies, success stories, evaluations, etc.

FME Communications Committee: Activity 2018–2019

Communications Committee. FME established a Communications Committee in October 2018. The aim of the Communications Committee is to support the dissemination of material about formal methods as well as the activities of FME. The committee has the following members:

- Marcello Bersani, Politecnico di Milano, Italy.
  Role: Marcello will liaise with the Awards Committee, the Book Review Committee, and the Industry Committee.
- Carlo A. Furia, Università della Svizzera Italiana , Switzerland.
  Role: Carlo will work on the communications strategy and guidelines for conferences and liaise with the member of the Board in charge of conferences.
- Einar Broch Johnsen, University of Oslo, Norway.
  Role: Einar chairs the Communications Committee, maintains the FME website, Twitter account and LinkedIn group. He will work on an overall policy document on communications.
- Claudio Menghi, University of Luxembourg.
  Role: Claudio will liaise with the Teaching Committee. Claudio has also developed a questionnaire to collect feedback from FM conferences.
- Pedro Ribeiro, University of York, UK.
  Role: Pedro is in charge of communications for FME business meetings. He has investigated webinar platforms, leading to the first online channel for participation at the AGM 2019. Pedro is also in charge of FME's YouTube channel.

Web Site. FME's website http://www.fmeurope.org is maintained by Einar Broch Johnsen. It was migrated in 2018 from a Wordpress CMS hosted at Graz University of Technology to a Hugo CMS, which is an open-source static site generator. One advantage of using a static site generator is that the site cannot be broken by updates to the CMS system, and pages are rendered at higher speed. Content is now maintained under version control as part of FME's svn repository, and pushed to the website server. In April 2018, the site was moved from TU Graz to the University of Oslo. In response to concerns about GDPR, the board decided not to track traffic on the website using Google Analytics. Consequently, we do not have statistics on the traffic on the new website.

Upcoming Formal Methods Conferences. As a service to the members we maintain a page with a list of upcoming conferences in formal methods. Its main purpose is coordination among conference organisers. Therefore, we established contacts with the steering committees and actively poll them for conference dates before publication in Call for Papers.

LinkedIn Group. Since July 2010, FME has a presence on the social network LinkedIn. The discussion group is called Formal Methods Europe. Jonathan Bowen is its owner, John Fitzgerald, Bernhard Aichernig, Einar Broch Johnsen and Ana

Cavalcanti are the managers of the group. Everybody can read the group. Only members can write. It currently has 1,682 members (last year: 1,670 members).

Twitter. FME has established a Twitter presence with the account @FormalMtds, which currently has 280 followers. We have started using it, so far mainly to spread information about FM 2019 (which has a separate twitter account).

YouTube. FME has established a YouTube presence with a channel to disseminate formal methods at

https://www.youtube.com/channel/UC5rZj0AyBudca0YRgEAX-Ow

It has so far been used to release material promoting FM2019, and keynotes from the symposium on this channel have been published today.