FINAL PROGRAM

http://www.ada-europe.org/conference2022

In cooperation with

PRESENTATION

After a hiatus of two consecutive years, the 26th Ada-Europe International Conference on Reliable Software Technologies (AEiC 2022) returns in presence. For the occasion, the conference returns to Belgium for the second time, after 2001 in Leuven, to take place in Ghent, from the 14th to the 17th of June.

The conference is the latest in a series of annual international conferences started in the early 80's, under the auspices of Ada-Europe, the international organization that promotes knowledge and use of Ada and Reliable Software in general, into academic education and research, and industrial practice.

The conference is an established international forum for providers, practitioners and researchers in reliable software technologies. The conference presentations will illustrate current work in the theory and practice of developing, running and maintaining challenging long-lived, high-quality software systems for a variety of application domains including manufacturing, robotics, avionics, space, transportation.

The program features keynotes, technical presentations and discussions, and social events. Participants include practitioners and researchers from industry, academia and government organizations active in the promotion and development of reliable software.

The conference program includes two core days with keynote talks, peer-reviewed academic papers, industrial presentations, work-in-progress lightning talks and posters, and vendor presentations. The conference program is bracketed by one day of tutorials, and one day with three satellite events: the DeCPS workshop on "Challenges and new Approaches for Dependable and Cyber-Physical Systems Engineering"; the "ADEPT: AADL by its practitioners" workshop; and a Birds-of-a-Feather meeting on ASIS.

The event includes various social events: a welcome aperitif on Tuesday 14th, at the end of the afternoon tutorials; a visit to the magnificent Cathedral of St Bavo, with a 3D-visor aided exploration of its artistic treasures, followed by dinner at De Abt, an Orval brasserie from the most famous brewery housed in the Abbey of Orval; plus an elective boat tour across the picturesque canals of Ghent, followed by an equally elective group dinner at the historical Carlos Quinto restaurant, just behind the Town Hall.

Ghent, capital city of the East Flanders, is situated north-west of Brussels, an easy train ride from the international airport. Ghent is rich in history, culture and higher-education, with a top-100 university founded in 1817, on the whole, well worth a visit.

OVERVIEW OF THE CONFERENCE PROGRAM

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INVITED SPEAKERS

Wednesday, June 15th

Spotlight Talk (remote)

Envisioning the Future of Software Engineering

ANITA CARLETON

SOFTWARE ENGINEERING INSTITUTE, CARNEGIE MELLON UNIVERSITY (PA)

Abstract

As computing and software technologies advance, critical dependence on software also increases. However, software can be difficult to understand. It's extremely flexible, endlessly varied, never completely done, and it controls diverse and intertwined functions. While much of the focus in the software engineering and research communities revolves around specific innovations, there's also value in looking further ahead with a broad view. Recently, CMU SEI conducted a large, community-driven initiative to look at the wider discipline of software engineering and envision the future we can create, and what we need to do to prepare for that future. Carleton will share results of the study, including future challenges in engineering software-reliant systems and a research roadmap driving advances in foundational software engineering principles across system types, including intelligent, autonomous, safety-critical, and data-intensive systems. The aim is to aid the development of a global ecosystem for software engineering that engages academic, government, and commercial communities to work together on solving future problems and developing critical abilities.

Short Bio

Anita Carleton is the Division Director of the Software Solutions Division (SSD) at the Software Engineering Institute, Carnegie Mellon University, with more than 30 years of technical and senior leadership experience in the software engineering industry. She leads the software engineering research, development, and transition strategy for the SEI. Carleton received her bachelor's degree in Applied Mathematics from Carnegie Mellon University and her MBA from the MIT Sloan School of Management, where she was the recipient of the MIT Sloan Leadership Fellowship. Carleton is an IEEE Fellow and serves on the IEEE Software Advisory Board.

Thursday, June 16th

Keynote Talk

The Curious Case of Code Duplication in GitHub

CRISTINA (CRISTA) LOPES

SCHOOL OF COMPUTER SCIENCES, UNIVERSITY OF CALIFORNIA AT IRVINE (CA)

Abstract

Previous studies have shown that there is a non-trivial amount of duplication in source code. We analyzed a corpus of 2.6 million non-fork projects hosted on GitHub representing over 258 million files written in Java, C++, Python and JavaScript, and found a large amount of duplication, much more than we anticipated. This finding made us be much more careful when using open source repositories for drawing statistical conclusions, especially now – in the age of machine learning. In this talk, I will present our GitHub study, and will briefly talk about where languages like Ada stand in the new world of source code models.

Short Bio

Cristina (Crista) Lopes is a Professor in the School of Computer Sciences at University of California, Irvine, with research interests in Programming Languages, Software Engineering, and Distributed Virtual Environments. She is an IEEE Fellow, an ACM Distinguished Scientist, a twice-elected member of the SIGPLAN Executive Committee, and Editor in Chief of The Art, Science, and Engineering of Programming. She is the recipient of the 2016 Pizzigati Prize for Software in the Public Interest for her work in the OpenSimulator virtual world platform. She's also cofounder of Midspace, a virtual conference platform.

TUTORIALS: TUESDAY, JUNE 14TH

Morning, half day

T1: Moving up to Ada 2022

S. Tucker Taft, Adacore, USA

Abstract

Ada 2022 has been approved by ISO WG9, and hopefully by the time of the tutorial, ISO SC22 and perhaps ISO/JTC1, making it the new standard for Ada. It is time to learn what Ada 2022 can offer to you as an Ada programmer, manager of an Ada team, or someone evaluating whether Ada itself might be something worth trying. This tutorial will introduce the key features of Ada 2022, and show how they can be used to make programming both safer and more productive, by showing how past approaches to solving certain kinds of complex problems can be simplified and made more robust by transitioning to the use of enhanced Ada 2022 language constructs and libraries.

Level: *Intermediate to advanced.*

Programmers who have used some version of Ada in the past to solve challenging problems.

Reasons for attending

This tutorial should help you see, through a series of example problems similar to those you might have solved in the past, how you could use Ada 2022 features to produce a safer, more elegant, and more maintainable solution.

Presenter

S. Tucker Taft is VP and Director of Language Research at AdaCore. His specialties include programming language design, advanced static analysis tools, formal methods, real-time systems, parallel programming, and model-based development. Tucker was lead designer of the Ada 95 programming language, and is a member of the ISO Rapporteur Group that developed Ada 2005, Ada 2012, and Ada 2022. Tucker has also been designing and implementing a parallel programming language called "ParaSail," and defining parallel programming extensions for Ada as part of the new Ada 2022 standard. Tucker received an A.B. Summa Cum Laude degree from Harvard University, where he has more recently taught compiler construction.

Morning, half day

T2: Numerics for the Non-Numerical Analyst

J.P. Rosen, Adalog, France

Abstract

Numerics are a special area of software development, and numerically intensive programs are best developed by specialists of the domain. On the other hand, many programs have to deal with mathematical computations, without being really numerically intensive. This tutorial addresses the techniques (and pitfalls) that every application developer needs to know as soon as there are some computations that go beyond simple integer arithmetic, without requiring them to be advanced numerical analysts. The tutorial also addresses the various tools offered by Ada, from numeric types to libraries.

Level: *Intermediate.*

Casual knowledge of Ada.

Reasons for attending

- To learn how to select the most appropriate numeric type for your applications
- To avoid pitfalls and increase the accuracy and portability of numeric computations
- To discover the standard libraries provided by Ada

Presenter

JP Rosen is a professional teacher, teaching Ada (since 1979, it was preliminary Ada!), methods, and software engineering. He runs Adalog, a company specialized in providing training, consultancy, and services in all areas connected to the Ada language and software engineering. He is chairman of Ada-France. While on a sabbatical at New York University, he implemented fixed-point arithmetic for the Ada/ED compiler. Adalog offers regularly on-site and off-site training sessions on Ada.

Tuesday, June 14th, afternoon, half day

T3: The ALiRe package manager

F. Chouteau, AdaCore, France
A. R. Mosteo, Centro Universitario de la Defensa, Spain

Abstract

The ALiRe project (Ada Library Repository) is a community-oriented package manager for the Ada and SPARK open source ecosystem. Package managers simplify the dissemination and reuse of libraries, easing the development of new projects and fostering cooperation. They also allow simple upgrades of dependencies, which helps in bug fixing and vulnerability patching. Final applications can also be packaged for greater outreach. In this tutorial, participants will get to learn the basics of the ALiRe project, from design foundations to practical use. General concepts about dependency management will be presented intermixed with guided practical exercises that will allow participants learning how to use available libraries in their own projects, as well as the workflow to publish a library in ALiRe. As a real use case, the tutorial will tackle the use of ALiRe to bootstrap an embedded project with the support of libraries already available in the community index. This example embedded project will be tested either on simulation or on real boards, if possible.

Level: *Introductory to Intermediate.*

Basic knowledge of Ada and the GNAT compilation model is recommended but not mandatory.

Reasons for attending

Open source developers nowadays are used to leverage language- and platform-specific package managers to quickly and easily bootstrap projects, locate and reuse functionality and popular libraries, and generally ease development. Alire is the Ada-specific tool to know for people involved with or interested in the Ada language or its SPARK subset for formally verified code. It is also a simple and efficient way to start developing embedded projects, not only for Ada developers, but for any person interested in embedded/bare-metal development: Ada has features explicitly tailored for such scenarios and is perfectly suited to interoperate with C thanks to its binding capabilities.

Presenters

Fabien Chouteau joined AdaCore in 2010 after his engineering degree at the EPITA (Paris). He is involved in real-time, embedded and hardware simulation technology. Resolute Ada/SPARK supporter and lead of the Ada/SPARK advocacy team at AdaCore. He spent the last seven years spreading awareness about Ada/SPARK though OSS projects, blog posts, conferences and presentations (FOSDEM, Embedded World, Ada-France Meetup, etc.).

Alejandro R. Mosteo is a professor at Centro Universitario de la Defensa, Zaragoza, Spain, since 2011. He received the Ph.D. in 2010 from the Universidad de Zaragoza, Spain, for his research on teams of cooperative mobile robots. He is a long-time user of Ada in both academic and hobby contexts, and has authored several open source libraries for popular robotic frameworks such as Player/Stage and ROS. His research pursuits include multi-robot cooperation, decentralized algorithms, and autonomous air vehicles.

Tuesday, June 14th, afternoon, half day

T4: The HAC Compiler

G. de Montmollin, Ada Switzerland, Switzerland

Abstract

Sometimes, you would like to write a small program – typically, a text parser, a file converter, a shell script launching various applications, a small computation, etc. You would like to use your preferred "full Ada" compiler in order apply the same know-how as for large-scale development and to keep doors open in case the small program develops into a large, resource- and performance-intensive application. But, for a starter, you feel that your "full Ada" system is too heavy for the job. Perhaps it is because the compiler produces more intermediate files than your program itself would. Or the build time is a bit too long for experimenting. So, you actually miss an adequate tool.

The goal of the HAC Ada Compiler project is to fill that gap.

In the tutorial, we explore first the present possibilities offered by HAC. But the main part is allocated to brainstorming, trying small programs, discussing potential developments, say what you like, don't like or would like with HAC.

Level: *Basic Knowledge of Ada*

Reasons for attending

- Discover a different way of programming Ada, for different purposes
- Seize the opportunity to influence the future development of HAC: bring your ideas, use-cases, examples, wishes...
- Fun!

Presenter

Gautier de Montmollin is a software developer. He holds a PhD in mathematics from the University of Neuchâtel, Switzerland. His quest for both run time and development time efficiency has trapped him with the Ada language which he has the chance to use professionally (formerly in finance, now in robotics) and for private projects. He has presented professional and private projects at various Ada-Europe and FOSDEM conferences.

SOCIAL EVENTS

To celebrate the return to in-person fruition of the event, the conference program features a rich social program, which also includes elective components that participants may choose to select as part of their registration package.

Tuesday, June 14th

The first social event, a **Welcome Aperitif**, with Belgian beer tasting, generously sponsored by Vector Software, is scheduled at **18:30** at the "Il Trovatore" lounge, a restored medieval cellar, part of the NH Belfort Hotel, in the very center of town.

Wednesday, June 15th

At **18:30**, we will take a **private visit to the artistic treasures hosted at St Bavo's Cathedral**, a magnificent Gothic-style building erected in the very center of town in the XVI century. The visit will include a 3D-visor exploration of the altarpiece, Lam Gods (the Lamb of God), a most famous masterpiece by the Flemish painters van Eyck brothers, realized in the year 1432.

At **20:00**, right after that visit, we shall all move to the De Abt (The Abbot), the single Orval brasserie in the Flanders region. As its namesake suggests, De Abt originates from the most famous brewery housed in the Abbey of Orval. There, we shall treat ourselves with an Orval-beer flavoured **Conference Banquet**.

SOCIAL EVENTS (CONTINUED)

Thursday, June 16th

The elective part of the social program will have two parts:

At **18:30**, a **Boat Tour** in canals that encircle the medieval center of Ghent.

At **19:45**, a **Conference Dinner** at the Carlos Quinto restaurant, situated at a 10-minute leisurely walk across the heart of town from the boat pier. The restaurant is entitled to Charles the Fifth, who was Lord of the Netherlands, in the first half of the XVI century, thus also commanding the Ghent territory at the time, while also being King of Spain, Archduke of Austria, Duke of Burgundy, and Holy Roman Emperor, a very busy person, wasn't he.

ADDITIONAL TICKETS

Additional tickets can be purchased for the optional elements of the social program (Thursday 16th) and for accompanying persons for any of the social events featured in the program.

Extra Tickets	Unit Fee
Welcome Aperitif (Wed 15th)	22 €
Conference Banquet (Wed 15th)	80 €
Boat Trip (Thu 16th)	12 €
Social dinner (Thu 16th)	40 €
Extra Lunch, per day (Wed, Thu, Fri)	30 €

CONFERENCE VENUE

The conference takes place at the Culture and Convention Center "Het Pand" (The Property), a former Dominican monastery, founded in the XIII century, located in the historical center of town, on the banks of the river Leie. The halls assigned to the conference will cause participants to wander across floors and aisles of this complex building. **Address**: Onderbergen, 1. 9000 Ghent, Belgium.

CORE CONFERENCE COMPOSITION

The core conference program features five distinct types of technical presentations, with different duration, all followed by various manners of discussion time. In the visual synopsis of the program schedule shown in the following two pages each distinct presentation type is denoted by a specific colour code.

Technical Contribution Type	Colour Code	Duration
Keynote talk, Spotlight invited talk		Extended, 45 minutes
Journal-track talk		Long, 30 minutes
Industrial-track talk		Medium, 20 minutes
Work-in-progress-track talk		Lightning, 5 minutes plus poster
Vendor talk		Medium, 20 minutes

All papers presented at the conference in the journal track, the industrial track and the work-in-progress track have undergone peer review. All track chairs took it on themselves to assure that the review process was strictly free of conflict of interests between authors and reviewers.

It is a characterizing trait of the AEiC conference series that the presentations of such diverse contributions are combined into by-theme and not by-track presentation sessions, in order that authors and participants alike all enjoy all flavours of the program in a mixed as opposed to segregated combination.

CORE CONFERENCE SCHEDULE

	Wednesday, 15th June	Thursday, 16th June
08:50 – 9:00	**Welcome and opening** (conference chair)	
9:00 - 10:30	**Session 1**: *Uses of Ada* **Chair**: Jean-Pierre Rosen	**Keynote Talk** **Chair:** Tullio Vardanega
	Defining a Pattern Matching Language Feature for Ada. **S.T. Taft**, S. Baird, C. Dross	*The Curious Case of Code Duplication in GitHub* Cristina (Crista) Lopes, UC at Irvine, USA
	A Work Stealing Scheduler for Ada 2022, in Ada. S.T. Taft	
	Ada for the Interchange of Data. M. Schlueter	
	Ada on the Raspberry Pi RP2040 J. Grosser	
	HAC: from an Abandoned Teaching Project to a Usable Script-like Ada Tool G. de Montmollin	Extended Q&A and early start of break
	Renaissance-Ada: Tools for Analysis and Transformation of Ada Code **P. van de Laar**, A. Mooij	
10:30 - 11:15	**Refreshment break & Posters**	**Refreshment break & Posters**
11:15 - 12:45	**Session 2:** *Real-Time Systems* **Chair**: Aurora Agar	**Session 5**: *Special-Purpose Systems* **Chair**: Sara Royuela
	Partition Window Assignment in Hierarchically Scheduled Time-Partitioned Distributed Real-Time Systems with Multipath Flows **A. Amurri**, J.J. Gutierrez, M. Aldea Rivas, E. Azketa	*Deep Learning for Reliable Communication Optimization on Autonomous Vehicles* J. Lourerio, **J. Cecilio**
		Compiler Support for an AI-oriented SIMD Extension of a Space Processor **M. Solé Bonet**, K. Kosmidis
	Response-Time Analysis of Mesh-Based Many-Core Systems **D. García Villaescusa**, M. Aldea Rivas, M. González Harbour	*Space Compression Algorithms Acceleration on Embedded Multicore and GPU Platforms* A. Jover-Alvarez, **I. Rodriguez-Fernandez**, L. Kosmidis, D. Steenari
		Fine-grained Runtime Monitoring of Real-Time Embedded Systems Z. Boukili, **H.N. Tran**, A. Plantec
	Design Patterns Recognition for Applying Multiprocessor Real-Time Scheduling Analysis **S. Rubini**, V.A Nicolas, F. Singhoff, A. Plantec, H.N. Tran, P. Dissaux	*Software Tool for Evaluation of Multi-Sensor Object Tracking in ADAS Systems* **A. Medaglini**, S. Bartolini, V. Di Massa, F. Dini
		Securing IIoT Communications using OPC UA PubSub and Secure Element **O. Gilles**, D. Gracia Pérez, V. Lacroix, P.A. Brameret
12:45 - 14:15	**Lunch**	**Lunch**

	Wednesday, 15th June	Thursday, 16th June
14:15 - 15:45	**Session 3**: *Development Challenges* **Chair**: Alejandro R. Mosteo	**Session 6**: *Verification Challenges* **Chair**: António Casimiro
	Agile Development for Critical On-Board Software E. Alaña, I. Bachiller, **S. Urueña**, R. Lange	*Boosting Simulation and Debugging of Cyber-Physical Systems with Symbolic Exploration* I. Kolesnikov
	Integration of Modelling Languages for the Development of Space Domain Software Applications **Á.G. Pérez**, M.A. de Miguel, H. Valente, J. Zurera, J. Zamorano, A. Alonso, J.A. de la Puente	*Improving Usability and Trust in Real-Time Verification of a Large-Scale Complex Safety-Critical System* B. Kempa, C. Johannsen, **K.Y. Rozier**
	Vendor Presentation: Vector Software	*Use of Graph Databases for Static Code Analysis* **Q. Dauprat**, P. Dorbec, G. Richard, J.P Rosen
	Model-Driven Development for the seL4 Microkernel Using the HAMR Framework J. Belt, Robby, **J. Hatcliff**, J. Shackleton, J. Carciofini, T. Carpenter, E. Mercer, I. Amundson, J. Babar, D. Cofer, D. Hardin, K. Hoech, K. Slind, I. Kuz, K. McLeod*	*Tracing and Measuring GPU Execution in Automotive Software Systems* **T. Carvalho**, L.M. Pinho
		The Work of Proof in SPARK C. Dross
		Vendor Presentation: AdaCore
		ATTEST: Automating the Review and Update of Assurance Case Arguments **F. Ul Muram**, M. Atif Javed
15:45 - 16:30	**Refreshment break & Posters**	**Refreshment break & Posters**
16:30-18:00	**Session 4:** *Advanced Systems* **Chair**: Jérôme Hugues	**Session 7:** *Real-Time Systems* **Chair**: L. Miguel Pinho
	Resilience-Aware Mixed-Criticality DAG Scheduling on Multicores for Autonomous Systems **J. Zou**, X. Dai, J. McDermid	*Near-Optimal Energy-Efficient Partial Duplication Mapping of Real-Time Parallel Applications* **M. Cui**, A. Kritikakou, L. Mo, E. Casseau
	Artificial Neural Networks for Real-Time Data Quality Assurance **I. Sousa**, A. Casimiro, J. Cecilio	*Real-Time Fixed Priority Scheduling Synthesis Using Affine Data Flow Graphs: from Theory to Practice* **A. Honorat**, H.N. Tran, T: Gautier, L. Besnard, S.S. Bhattacharyya, J-P. Talpin
	Increasing CPS Productivity and Resiliency through Accelerated Software Replication A. Munera, E. Quiñones, **M. Pressler**, A. Hamann, D. Ziegenbein, **S. Royuela**	*EDF Scheduling for Distributed Systems Built upon the IEEE 802.1AS Clock – A theoretical-Practical Comparison* **H. Pérez**, J.J. Gutierrez
	Spotlight Invited Talk	**Best Presentation Award** **Future events** **Closing of Core Program**
	Envisioning the Future of Software Engineering A. Carleton, SEI, USA	

CO-LOCATED EVENTS: FRIDAY, JUNE 17TH

7th International Workshop: *Challenges and new Approaches for Dependable and Cyber-Physical Systems Engineering (DeCPS 2022)*

http://www.ada-europe.org/conference2022/decps.html

Organizers

- Alessandra Bagnato, SOFTEAM, France
- Daniela Cancila, CEA LIST, France
- Luis Miguel Pinho, ISEP, Portugal

Synopsis

In recent years, the Internet of Things (IoT) has experienced an extraordinary development with large impact on society; however, there is still a gap between the physical and the cyber worlds. Cyber Physical Systems (CPS) constitute a new class of engineering systems, which integrate software control and autonomous decision making with signals from an uncertain and dynamic environment. Where the Internet transformed the way people interact and deal with information, CPS technology transformed the way people interact with engineering systems.
The DeCPS workshop is a collaboration event, providing a platform to industrial practitioners, researchers and engineers in academia to exchange of their ideas, research results, experiences in the field of dependable and cyber physical systems engineering, from a theoretical as well as a practical perspective.
Following the workshop tradition, the 2022 edition will consist of presentations of applied research in the area, as well as a discussion session on future challenges and potential collaborations.

Program

09:00 - 09:30	**Welcome & Opening**
09:30 - 10:10	**Invited Talk**
	Challenges in Edge Intelligence for IIoT, Tom Goethals (Ghent University)
10:10 - 10:30	**Session 1 - AI at the Edge**
	ANIARA Project - Automation of Network Edge Infrastructure and Applications with Artificial Intelligence
10:30 - 11:15	**Refreshment break**
11:15 – 11:35	**Session 1** (continued)
	DAIS Project - Distributed Artificial Intelligence Systems: Objectives and Challenges
11:35 - 12:45	**Session 2 – CPS Software Development**
	AI-augmented Model-Based Capabilities in the AIDOaRt Project: Continuous Development of Cyber-Physical Systems
	AMPERE - A Model-driven development framework for highly Parallel and EneRgy-Efficient computation supporting multi-criteria optimization
	MORPHEMIC - Optimization of the deployment and life-cycle management of data-intensive applications in the Cloud computing continuum
12:45 - 14:00	**Lunch**
14:00 - 14:40	**Session 3 - Non-functional Properties**
	5G Regulation and Cybersecurity in Autonomous Vehicles
	Managing non-functional requirements in an ELASTIC edge-cloud continuum
14:40 - 15:30	**Discussion**: future challenges and potential collaborations

Proceedings

The DeCPS organizers will produce post-event proceedings, with all of the presented papers, and summary of the discussions, to appear in due course in the Ada User Journal.

International Workshop: *AADL unveiled by its practitioners (ADEPT)*

https://adept22.univ-brest.fr

Organizers

- Jérôme Hugues, Software Engineering Institute, Carnegie Mellon University, USA
- Frank Singhoff, Lab-STICC/Univ. of Brest, France
- Hai Nam Tran, Lab-STICC/Univ. of Brest, France

Event sponsor

Ellidiss Technologies

Synopsis

The Architecture Analysis and Design Language (AADL) is an International Standard curated by SAE International, https://www.sae.org/, dedicated to the precise modelling of complex embedded systems, covering both hardware and software concerns. AADL's definition relies on a precise set of concepts inherited from industry and academic best practice: clear separation of concerns among layers, rich set of properties to document system metrics and support for various kinds of analysis: scheduling, safety and reliability, performance, as well as automated code generation. The AADL standard is now a mature standard for the modelling of critical embedded real-time systems. Presently, AADL is employed by numerous stakeholders in the domain of critical embedded real-time systems to address a large set of concerns: performance (latency, schedulability), safety, or security.

The ADEPT workshop aims to present and report on current projects in the field of design, implementation and verification of critical systems where AADL is a first citizen technology. The ADEPT workshop is also an opportunity for AADL beginners to meet experienced AADL practitioners.

A post-workshop proceeding, published by the Ada User Journal, will be collated as a joint report that summarizes the workshop talks and discussions co-authored by all participants.

Program

09:00 - 09:30	**Welcome & Opening**	*J. Hugues*
09:30 - 10:30	**Session 1**: *Tools & methods* **Chair**: Hai Nam Tran	**AADL modelling with SysML v2** *J.-C. Roger, P. Dissaux*
		Unified graphical co-modeling, analysis and verification of cyber-physical systems by combining AADL and Simulink/Stateflow *X. Xu, S. Wang, B. Zhan, X. Jin, J-P. Talpin, N. Zhan*
10:30 - 11:15	**Refreshment break**	
11:15 - 12:15	**Session 1** (continued): *Tools & methods*	**C2AADL_Reverse: A model-driven reverse engineering approach to development and verification of safety-critical software** *Z. Yang, Z. Qiu, Y. Zhou, Z. Huang, J-P. Bodeveix, M. Filali*
		COMPASTA: Integrating COMPASS Functionality into TASTE *A. Bombardelli, M. Bozzano, R. Cavada, A. Cimatti, A. Griggio, M. Nazaria, E. Nicolodi, S. Tonetta*
12:15 - 12:45	**Session 2**: *Examples of use* **Chair**: Pierre Dissaux	**Experiences Modeling a OPC UA / DDS Gateway in AADL in the Context of Fog Computing** *P. Denzler, D. Scheuchenstuhl, D. Ramsauer, W. Kastner*
12:45 - 13:45	**Lunch**	
13:45 - 15:15	**Session 2** (continued): *Examples of use*	**Modelling robot architectures with AADL** *G. Bardaro, M. Matteucci*
		AADL models for ROS based applications *E. Senn, L. Bourdon*
		An Introduction to ALISA and an Experience Report on its Usage for an Industrial Railway System Case Study *D. Blouin, P. Crisafulli, F. Caron, C. Maxime*
15:30 - 17:00	**Panel Discussion** Chair: Frank Singhoff	

Birds-of-a-Feather Meeting: *Future of ASIS and Vendor Independent Tools*

http://www.ada-europe.org/conference2022/bof-asis.html

Organizer

Jean-Pierre Rosen

Synopsis

Ada is a complex language to compile and analyse; ASIS is an international standard that alleviates the burden of writing third-party program analysis tools by providing access to the syntactic tree built by the compiler with an API for traversing the tree, syntactic and semantic queries, etc. Several tools and utilities have been designed that build on ASIS.

The ASIS standard has not been updated beyond the Ada 95 version of the language. Some vendors support strictly the standard, hence only Ada 95 technology. Others vendors have implemented extensions for later versions of Ada. On the whole, the long-term support of ASIS is uncertain.

This situation raises concerns for third-party tool developers and users. This BoF session aims at gathering tool users, tool writers, compiler vendors, and other interested parties into an informal meeting to discuss the following topics:

- User expectations on existing and future program analysis tools
- Opportunities for updating the ASIS standard
- Support for ASIS (by vendors or volunteers)
- Viability of abandoning ASIS to migrate to different libraries.

Who should attend

- Users who want to voice their needs and expectations regarding current and future program-analysis tools.
- Tool vendors who want to express their needs, influence future directions, or be informed of possible alternatives.
- Compiler vendors who want to listen to the needs of the customer base
- Volunteers considering to help with continued support for ASIS

Outline of the meeting

The meeting will start at 9:30, with expected end at 12:00, and a refreshment break from 10:30 to 11:00.

1. Welcome and presentation of ASIS (J-P. Rosen)
2. Presentation by compiler vendors of their existing solutions and future plans (compiler vendors)
3. Presentation by tool vendors of their needs and concerns (tool vendors)
4. General discussion

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PROCEEDINGS

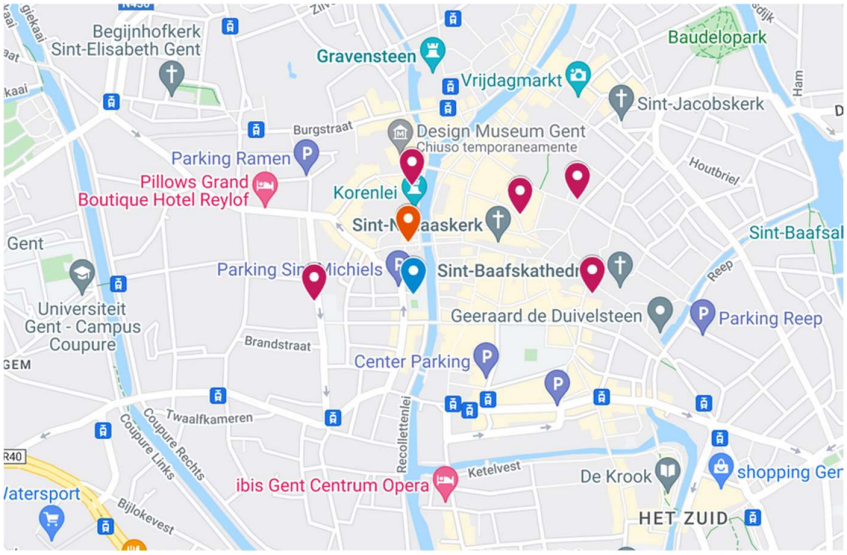
The papers presented at the conference are channelled into distinct proceedings.

The journal-track papers that will successfully complete their cycle of peer-review and revisions, will appear in a dedicated, Open Access, Special Issue of Elsevier's **Journal of Systems Architecture**. In order to speed the publication cycle, the papers assigned to that Special Issue will appear asynchronously, as soon as ready individually. Their individual availability in Open Access for everyone will be announced on the Ada-Europe website dedicated to AEiC 2022. Expectedly, such papers will begin to appear as of September 2022.

ELSEVIER

The papers presented in the industrial track, the work-in-progress track, and the two collocated workshops, DeCPS 2022 and ADEPT, will all appear in subsequent issues of the **Ada User Journal**, expectedly from June 2022 right after the end of the conference.

ACCOMMODATION IN GHENT



There is no "conference hotel" as such this year. The dark red spots shown in the map on the left, mark hotels within easy walking distance of the conference venue "Het Pand" (the light blue spot on the horizontal left of St. Baavo's Cathedral).

The Welcome Aperitif shall take place at the NH Belfort Hotel (the rightmost dark red spot north of the Cathedral), only meters from the Novotel Centrum hotel (slight left from Belfort on the map). Other hotels on the map include Ibis Centrum (the closest spot near the Cathedral), and the Marriott Hotel, north of Het Pand on the map.

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