

Add Community Advocacy

Fostering a healthy ecosystem for the future of Add

Fernando Oleo Blanco - Ivise



Contents

What to expect

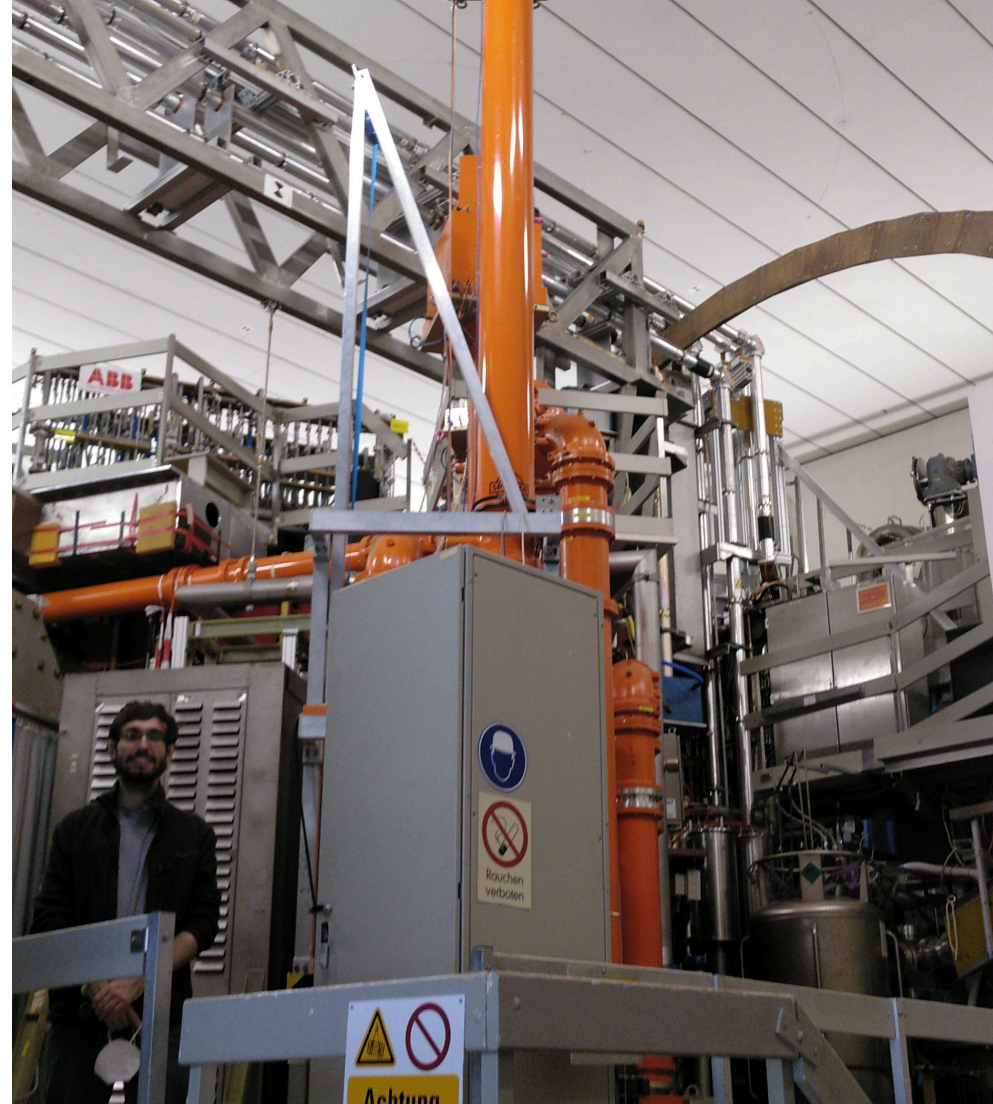
- Introduce myself
- Difference between formal & organised community and the *Outer Wilds*
- Being efficient, fostering and selling Ada
- *Bob Dylan - The Times They Are A-Changin'*
- Future? Hopefully a bright one!

Community discussion, **feel free to participate & interrupt!**

The presentation style is going to be *very* informal

whoami

- Fer, the original since 1997 :)
 - Irvise in the net
- Industrial and mechanical engineer
 - Materials, thermals, fluids, FEM
- Currently working in the nuclear sector
 - Systems engineer (P&IDs, cycles, components...), no programming!
- Huge Libre Software aficionado
 - Full-time Linux since 18
- And what about Ada?
 - Hopefully my point of view enhances yours



Programming history

- Hello World! in Ruby at... 16?
- Functions, loops, ifs and Fibonacci in Python 3
- University, bachelor
 - C (for embedded systems)
 - Matlab, Simulink
 - Operational Research...
 - ???
- Industrial Eng. Master
 - Function Blocks, Structured Text, Sequential Function Charts, Ladder (PLC)

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Fortran 66

FRAPTRAN-2.0, nuclear safety analysis (LOCA)

Very well written, documented, commented and structured

```
COMMON A/B
C      COMMENT
      X=KODE(J)
      IF (X.LT.0) GO TO 55
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55     CALL SOMETHING (INTPUT, OUTFLOAT)
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Can we do better?

- **Fortran 2003-2023**
- C/C++?
- Frama-C, seL4?

Real Programmers Don't Use PASCAL

Enter... Ada

- "Formally verified with SPARK"
- "Readable and easy to learn"
- "Efficient, high & low level, compiled and without GC" – Blazingly f*cking fast
- "Used in the army, aeronautical and space"
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with Ada.Text_IO;  
  
procedure My_Hello_World is  
begin  
  Ada.Text_IO.Put_Line ("Hello, World!");  
end My_Hello_World;
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Mmmm...

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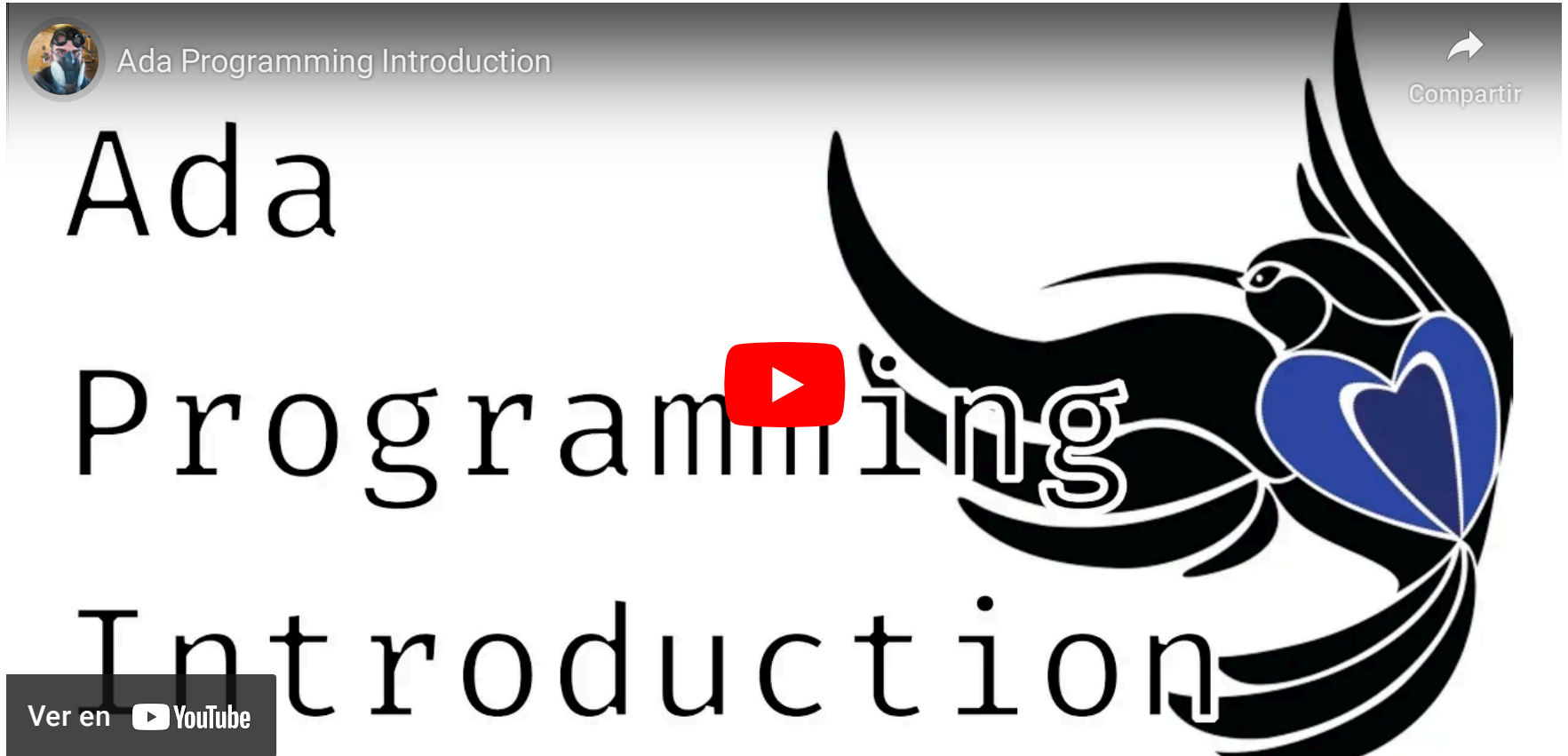
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-- 18.3 Memory Map  
type UART_Type is record  
  txdata : txdata_Type with Volatile_Full_Access => T  
  rxdata : rxdata_Type with Volatile_Full_Access => T  
  txctrl : txctrl_Type with Volatile_Full_Access => T  
  rxctrl : rxctrl_Type with Volatile_Full_Access => T  
  ie      : ie_Type      with Volatile_Full_Access => T  
  ip      : ip_Type      with Volatile_Full_Access => T  
  div     : div_Type     with Volatile_Full_Access => T  
end record  
  with Size => 7 * 32;  
for UART_Type use record  
  txdata at 16#00# range 0 .. 31;  
  rxdata at 16#04# range 0 .. 31;  
  txctrl at 16#08# range 0 .. 31;  
  rxctrl at 16#0C# range 0 .. 31;  
  ie     at 16#10# range 0 .. 31;  
  ip     at 16#14# range 0 .. 31;  
  div    at 16#18# range 0 .. 31;  
end record;  
UART0_BASEADDRESS : constant := 16#1001_3000#;  
UART0 : aliased UART_Type  
  with Address      => System'To_Address (UART0_BASEADDRESS),  
       Volatile     => True,  
       Import       => True,  
       Convention   => Ada;
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```


My beginning



Work done in Ada

1. Started using AVRAda, gave and received some feedback
2. Ada and RISC-V? Lets goooo HiFive Rev B
 1. Helped get the Rev B up and running in Ada_Drivers_Library
3. NetBSD runs everywhere... and so does Ada in theory...
 1. With the huge help of J. Marino, updated GNAT 10 in pkgsrc (x86* only)

4. Dirk Craynest was stepping down from organising the Ada Devroom @ FOSDEM
 1. No body stood up for 2022, so I did
 1. I really liked the Ada videos in FOSDEM, specially J-P's Introduction to Ada
 2. I did not want it to die...
 2. (Virtual) Room in 2022
 3. Stand in 2023
 4. Nothing in 2024...
5. Ada was dying... something had to be done... Ada Monthly Meeting started in 2023

Focus on informal & amateur communities

The formal side of the Ada community

Ada has had a long and stablished professional community:

- Ada-Europe
 - And the different national assemblies
- SIGAda (RIP?)
- WG-9, the ones building the ISO standard
- AdaCore
- Army
- Aerospace
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Hackers, newbies, tinkers... A mostly decentralised bunch of great people

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This group will be my focus, as I feel this is of extreme importance for Ada's future

Success, a story told in two acts

Ada is great, don't we all agree?!

Yes, it may not be perfect for every case but...

Ada is obviously successful, isn't it?

- Great typing system!
 - The modern programming world favours types, see Rust, TypeScript, Python 3, Gleam, Elixir, Swift, Kotlin, Dart, Go, even f*cking PHP...
- Great readability and clean syntax! Python, Lua-like (yes, Pascal)
- Ease of learning! So much so, that new people point out that it is *too verbose*, **what a compliment!**
- Great module system! Unlike some very well-known languages that are just as old...
- Amazing features!
 - Tasking, Contracts, C interop, WASM, nice standard library, great embedded support...
- Mature: stable, well-understood, documented, with high-quality learning resources...
- SPARK, state-of-the-art formal verification
- People who (properly) learn it, praise it even when they struggle

What is success for a language (and its community)

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Ada should be pretty much perfect except for:

- Prototyping or scripting: Lua, Python 3
 - Check out HAC and SPARforte for some Ada-based scripting!
- Dynamic, meta-programming: Scheme, LISP, Forth

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In this case, η means efficiency, effectiveness to bring that theoretical potential to reality...

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For Ada, η is... quite low

The community **is** the reflection of efficiency

Why do communities exist and what do they represent?

Communities are built around perceived value:

- Interesting?
- Fun or enjoyable?
- Profitable?
- Fulfilling or productive, maybe good-enough?
- Ease of access and/or ease of learning?
- Modern or trendy?
- Honor or tradition?
- Requirement, such as certification or debt?
- **Sense of belonging or community?**

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Ada's case

A different story in my opinion...

- Very interesting and capable
- Less fun? Focused on getting sh*t done
- Few jobs available
- Yes, if you care about quality
- Yes and no?
- ...
- Some?
- Yes, legacy and technical debt...
- ???

New and old problems to foster a healthy, growing & sustainable community

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 - **Times are changing old men**
 - Trends rule the modern day, success will in the end be based on merits

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 - Trends rule the modern day, success will in the end be based on merits
- **Are you proud of being part of the Ada community? Are we accessible to newcomers?**

A sense of belonging, visibility and sustainability I

Ada runs on a shoe-string budget

Help other Ada users... and yourselves!

- Apple / OSX / Mac supported by only one person, Simon J. Wright
 - Also quite a lot of ARM!
- SweetAda is developed solely by Gabriele Galeotti
 - Single showcase of multiarch support in Ada
- AdaCore is still the driving force
 - While there has been friction in the past, lets try to cooperate
- Some younger folks would be welcomed!
 - The average age of the typical Ada programmer is... a bit high

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Efficiency is key here! If you have something cool, promote it!

A sense of belonging, visibility and sustainability II

The community is quite small, but incredibly knowledgeable

Show the world!

- Show the rest of the community and the wider programming world what we are capable of!
 - The topics in this conference are a testament on how *cool* we are!
 - Be proud of and talk about them!

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Help lower the barrier of entry

- Updated learning methods, more dynamic and accessible ones... **Documentation is key!**
 - Learn.AdaCore & Ada-Lang are great, but not enough
 - Libraries and tools also need their docs, just look at Rust!
- Help with questions, share best practices, tricks
 - A bigger community greatly helps here
- Better tooling and libs
 - Alire & GetAda
 - Need to improve OS support and basic libraries/tools

Utilise the resources around us

Developers, developers, developers, (& marketing)

- "This would be better written in Ada"
 - Be efficient, reuse C libs, showcase value-added Ada



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- Participate in events!
 - Google Summer of Code (GSoC)
 - Even GNU Cobol is there!
 - Fortran-Lang too!
 - Language conferences
 - General ones and **formal verification**



Closing remarks

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Maintain a healthy relationship between the formal and informal communities

Become more efficient, dynamic, bolder... younger?

More proactive, less complacent?

Thank you!

Comments? Critics?

Fernando Oleo Blanco -/- irvise@irvise.xyz