

| Type | Topics | Sub-topics | Duration |
|---------------------------------|---|--|----------|
| Welcome and presentation | | | 10 |
| Keynote | Context and Challenges | <u>Introduction/Keynote (TBD)</u> - Presentation of the context and challenges - Presentation of current status of certification recommendations / processes in aeronautics or automotive (e.g. ARP). Talk: Dmitri KIROV, Collins Aerospace | 35 |
| | | Question | 10 |
| Subject 1 | Bridging the gap between Training and Implementation models | <u>Trusting the training environment</u> - Overview of the technologies used for model training - How do we ensure compliance between the (e.g.) Python model and the specification model? Talk: Dumitru POTOP-BUTUCARU, INRIA | 15 |
| | | DISCUSSION | 20 |
| | | <u>Towards a standardized ML description format for safe systems</u> - What do we expect from a ML format for critical systems? Talk: ONNX and the SONNX initiative, Eric JENN, IRT | 15 |
| Subject 2 | Specifying Design Models models | DISCUSSION | 20 |
| | | <u>Under the Hood: model transformation and optimizations</u> - How do we get from the model to its implementation? - What kind of optimizations are performed on DNN? - How to gain confidence in automatic transformations for use in certified systems? - How do these optimizations compare to optimization performed by compilers or a certification perspective ? - Issues raised by ML acceleration hardware Talk: To be completed. | 15 |
| | | DISCUSSION | 20 |
| BREAK | | | 10 |
| Subject 4 | Determinism, predictability, reproducibility | <u>Numerical accuracy</u> - Impact of quantization, custom number formats on correctness, stability, and safety margins of ML - What are the source of approximations? - What are the effects of those approximation on the behaviour of the neural network? - Do we have to care about it? - How can we specify those errors? Bound them? Talk: David DEFOUR, Université de Perpignan | 15 |
| | | DISCUSSION | 20 |
| | | <u>Open source initiatives</u> - Open source ML frameworks / tools that could serve as a basis for trustable implementations? TALK: The AIDGE initiative, Pierre GAILLARD, CEA | 15 |
| Subject 5 | The Need for Tools | DISCUSSION | 20 |