



Language tools for parallel programming

- Ateji is a specialist in language technology
- Founded in 2005 in Paris, ~10 persons
- DSLs as extension to mainstream languages
- IDE integration and tool support
- An example: OptimJ = Java + optimization
- Language extension is difficult: Ateji has innovative technology and know-how



The major barrier to adoption is the language

- Mainstream languages have no built-in notion of parallelism
- Specialized languages are unlikely to become adopted before long
- Our proposal: Java + pi-calculus primitives
- Why Java? The most popular language today
- Why pi-calculus? Intuitive, concise, efficient implementations, and based on a strong theoretical foundation



What does this bring ?

- A **fast track** for all application developers to adopt parallel programming
 - compatible with current practices and tools
 - parallelism is made simple and intuitive
 - programs can be proved correct
 - high-level code optimizations
 - architecture independent model
- language-level only: no additional performance



Looking for partners

- To assess the relevance of the approach
- To design performant implementations on a wide range of architectures
- To identify useful properties for theorem proving

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