

Expression of Interest



Contact Person/Scientist in Charge

- **Name and surname:** German Vidal
- **Email:** gvidal@dsic.upv.es

Universitat Politècnica de València (UPV)

Department / Institute / Centre

- **Name:** DSIC, Universitat Politecnica de Valencia
- **Address:** Campus de Vera; Camino de Vera, s/n; Valencia (46022)
- **Province:** Valencia

Research Area

- Information Science and Engineering (ENG)

Brief description of the institution:

Universitat Politècnica de València (UPV) is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation. Constituted in 1971, it comprises nearly 30.000 students, over 2500 academics, and 17 university research centres of excellence.

UPV has a relevant experience in the participation in international research programmes, with over 100 FP7 projects and 40 H2020 projects in the period 2014-2015. UPV researchers are also actively involved all H2020 life program stages, from workprogramme drafting discussions, to project coordination. It is also taking part in several major partnering initiatives (JTIs, PPPs, KICs...).

Brief description of the Centre/Research Group (including URL if applicable):

German Vidal leads the Multi-paradigm Software Technology (MiST) research group. The main research areas of the MiST group are the following:

- Programming languages and, in particular, functional and declarative programming languages (Haskell, Curry, Prolog, Erlang); semantics; concurrency; multi-paradigm languages; evaluation strategies; laziness; reversibility; inversion.
- Program analysis and transformation and, in particular, partial evaluation; fold/unfold; profiling; cost analysis and estimation; termination analysis; debugging; tracing; slicing; testing; symbolic execution; program verification; test-case generation.

The members of the MiST group participate regularly in R+D projects related to these topics. We try to keep a balance between theory and applications. Our team participates regularly in the best conferences of our research area, including ICLP, ICFP, PPDP, PEPM, LOPSTR, FLOPS, etc.

MiST web site: <http://users.dsic.upv.es/~gvidal/german/mist/>

Project description:

Verification of message-passing concurrent programs

The main goal of the project would be to contribute to the advance of the research in rigorous techniques to improve the reliability of applications written in a concurrent programming language based on message passing (i.e., following the so called "actor model"). The project will focus on the development of new validation and debugging techniques for these languages. In particular, we plan to develop appropriate techniques to represent concurrent programs (e.g., programs written in Erlang) in CHC, Constraint Horn Clauses, so that state-of-the art solvers can be used to prove safety properties of the original program.

Applications

Required documents: CV, letter of interest. Deadline: July 2016.