

Gustavo Federico PETRI

PERSONAL INFORMATION

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INTERESTS AND SKILLS

I am interested in *verification, automated reasoning, security, programming languages* and *distributed and concurrent systems* design and implementation. I have expertise both in software and hardware components of systems. My academic background is in theoretical computer science, verification and distributed systems. I am particularly interested in the applications of theory to practice.

I have substantial experience in academia, preparing talks, courses and training material, as well as industrial experience developing ambitious research prototypes. I have experience leading projects with small teams of developers.

EMPLOYMENT

- 2018- STAFF SECURITY RESEARCH ENGINEER. **Arm, UK.**
Some of my responsibilities include:
- i) Design and prototype innovative technology to secure communications of μ services, IoT, and Edge devices.
 - ii) Design and lead the implementation a number of software solutions based on hardware Trusted Execution Environments.
 - iii) Responsible for management and mentoring of a small group of engineers.
 - iv) Write academic papers, patents and I regularly present my work at conferences and workshops.
- 2015-2019 ASSOCIATE PROFESSOR. *Maître de Conférences* (tenured position) at the Computer Science Department of the **Université Paris Diderot–Paris 7**. Member of the **Modeling and Verification** team, Institut de Recherche en Informatique Fondamentale (IRIF).
- 2013-2015 VISITING ASSISTANT PROFESSOR. Non-tenure track faculty position at the Computer Science Department at **Purdue University**. Working in collaboration with *Prof. Suresh Jagannathan* and *Prof. Jan Vitek* on the verified compilation of concurrent languages.
- 2012-2013 POSTDOCTORAL RESEARCHER. Computer Science Department at **Purdue University**. Collaborated with *Prof. Suresh Jagannathan* and *Prof. Jan Vitek*.
- 2011-2012 POSTDOCTORAL RESEARCHER. Foundations of Programming Languages Team, School of Computing, **DePaul University**. Collaborated with *Prof. Radha Jagadeesan* and *Prof. James Riely* on the semantics and verification of relaxed memory models.
- 2006–2006 INTERN. Everest Team, INRIA – Sophia Antipolis. Collaborated with *Prof. Marieke Huisman* on formalizing the Java Memory Model in the Coq proof assistant.
- 2005-2006 JAVA DEVELOPER. Instituto Tecnológico Córdoba. Worked on a clean room development of the `java.rmi` library funded by the Intel Corporation.

EDUCATION

PH.D. IN COMPUTER SCIENCE. INRIA – Sophia Antipolis, France (degree granted by the Université de Nice – Sophia Antipolis). Directed by *G erard Boudol*. Thesis: “Operational Semantics of Relaxed Memory Models”. **Reviewers:** Andrew Appel and Jean-Jacques L evy. **Committee:** Mart ın Abadi, *Gilles Barthe* (president), G erard Boudol, Marieke Huisman, Xavier Leroy and Jean-Jacques L evy.

M.S. IN COMPUTER SCIENCE (EQUIVALENT) “Licenciado en Ciencias de la Computaci n”, (five years C.S. degree) at Fa.M.A.F., Universidad Nacional de C rdoba (U.N.C.), Argentina.

B.S. IN COMPUTER SCIENCE (EQUIVALENT) “Analista en Computaci n” (three years C.S. degree) at Fa.M.A.F., U.N.C., C rdoba, Argentina.

EXPERIENCE

RESEARCH I have conducted research in Programming Languages, Formal Semantics, Verification, Theorem Proving, Concurrency theory and practice, and Distributed Systems Security. My projects usually mix high-level software concepts with low-level hardware artifacts.

MANAGEMENT I have supervised Ph.D. and masters students in academia. I currently manage a small team of engineers. I have also been the P.I. for NSF and DARPA grants during my work at Purdue University.

TEACHING I have taught classes at all university levels (from 1st year to Ph.D.). I also teach courses in summer/winter schools on shared memory and distributed systems consistency.

PROGRAMMING I have programmed in, and taught, various programming languages including: Rust, C, Java, Scala, Python, Coq, Haskell and Ocaml among others.

SELECTED PUBLICATIONS

S. Nair, G. Petri, M. Shapiro

Invariant Safety for Distributed Applications. ESOP (2020).

C. Wang, C. Enea, S. Orhun Mutluergil, G. Petri

Replication-Aware Linearizability. PLDI (2019).

Y. Zakowski, D. Cachera, D. Demange, G. Petri, D. Pichardie, S. Jagannathan, J. Vitek

Verifying a Concurrent Garbage Collector using a Rely-Guarantee Methodology. ITP (2017).

H. Zhu, G. Petri, S. Jagannathan

Automatically learning shape specifications. PLDI (2016).

B. Sang, G. Petri, M. Saeida Ardekani, S. Ravi, P. Eugster

Programming Scalable Cloud Services with AEON. Middleware (2016)

H. Zhu, G. Petri and S. Jagannathan

Poling: SMT Aided Linearizability Proofs. CAV (2015).

G. Petri, J. Vitek and S. Jagannathan

Cooking the Books: Formalizing JMM Implementation Recipes. ECOOP (2015).

R. Jagadeesan, G. Petri, C. Pitcher and J. Riely

Quarantining Weakness: Compositional Reasoning Under Relaxed Memory Models (Extended Abstract). ESOP (2013).

COMMUNITY SERVICE

Participated in the program committee of FORTE (2019), SAC - MiDOS (2019), SAC - SOAP (2018, 2017, 2016), FTfJP (2016) and JFLA (2016). Contributed in the reviewing of: ACM Trans. on Programming Languages (TOPLAS), Journal of Automated Reasoning (JAR), Logical Methods in Computer Science (LMCS), Journal of Object Technology (JOT), Automated Software Engineering (ASE), POPL, PLDI, ESOP, TACAS, CAV, SAS, APLAS, CONCUR, ICALP, MFSC, FSTTCS, TCS, TLDI, etc.

LANGUAGES

• ENGLISH: Fluent.

• SPANISH: Native speaker.

• FRENCH: Fluent.