

GEORGE PÎRLEA

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RESEARCH INTERESTS

Formal verification, distributed systems, cryptography, anonymity and privacy, blockchains

EDUCATION

University College London Sep 2015 - Jun 2019
MEng Computer Science London, UK

- Degree classification: *First-Class Honours* (81 out of 100)
- Master's thesis: *Toychain: Formally Verified Blockchain Consensus*

Tudor Vianu National High School of Computer Science Sep 2011 - Jun 2015
High School Bucharest, RO

- Romanian Baccalaureate: 9.81 out of 10 (top 1% nationally)

RESEARCH EXPERIENCE

Zilliqa Research Pte Oct 2019 - ongoing
Researcher London, UK

- Working on blockchain sharding strategies and lightweight protocol verification

Max Planck Institute for Software Systems Jun-Sep 2019
Research Intern (Foundations of Programming) Saarbrücken, DE

- Formalised in-memory pinning in the λ_{Rust} semantic type system
- Verified the correctness of the `std::pin` module in the Rust standard library
- Used the Iris concurrent separation logic; supervised by Derek Dreyer and Ralf Jung

Microsoft Research Ltd Jun-Aug 2018
Research Intern (Confidential Computing) Cambridge, UK

- Developed F* formalisation of the Coco enterprise blockchain framework
- Proved sequential consistency for the formal model; supervised by Christoph Wintersteiger
- Found critical concurrency-related safety bug in the Coco C++ implementation

UCL Computer Science Jul-Sep 2017
Research Intern (Programming Principles, Logic, and Verification) London, UK

- Formalised and verified a parametric blockchain consensus protocol in Coq
- Joint paper with supervisor Ilya Sergey accepted at CPP 2018

PUBLICATIONS

1. George Pîrlea and Ilya Sergey. [Mechanising Blockchain Consensus](#). In *7th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP 2018)*. Los Angeles, CA, USA, January 2018. ACM.

ACADEMIC SERVICE

1. External reviewer for *9th ACM SIGPLAN International Conference on Certified Programs and Proofs (CPP 2020)*
2. Co-organiser of *ICFP Programming Contest 2019*: 143 teams from 25 countries participated

TALKS AND PRESENTATIONS

1. [A Formal Model of Rust's Pinning](#) at MPI-SWS *Sep 2019 – Saarbrücken, DE*
2. [Formally Verified Blockchain Consensus](#) at MPI-SWS *Jun 2019 – Saarbrücken, DE*
3. [Formally Verified Blockchain Consensus](#) at Zilliqa Research *Mar 2019 – Singapore, SG*
4. [Formally Verified Blockchain Consensus](#) at NUS *Mar 2019 – Singapore, SG*
5. [Formally Verifying Coco](#) at MSR Cambridge *Aug 2018 – Cambridge, UK*
6. [Mechanising Blockchain Consensus](#) at MSR Cambridge *Jun 2018 – Cambridge, UK*
7. [Mechanising Blockchain Consensus](#) at CPP 2018 *Jan 2018 – Los Angeles, USA*
8. [PSYNC](#) (work by Drăgoi *et al.*) at UCL PPLV reading group *Jul 2017 – London, UK*
9. [Electronic voting – perhaps not a good idea?](#) at Coliberator 2015 *Jun 2015 – Bucharest, RO*

AWARDS AND SCHOLARSHIPS

1. ACM POPL 2018 professional activities grant
2. ICFP 2017 Programming Languages Mentoring Workshop (PLMW) scholarship

ACADEMIC EVENTS ATTENDED

ICFP 2019	24th ACM SIGPLAN International Conference on Functional Programming
CMMRS 2019	Cornell, Maryland, Max Planck Pre-doctoral Research School 2019
S-REPLS 10	10th South of England Regional Programming Language Seminar, 2018
CPP 2018	7th ACM SIGPLAN International Conference on Certified Programs and Proofs
POPL 2018	45th ACM SIGPLAN Symposium on Principles of Programming Languages
CoqPL 2018	Fourth International Workshop on Coq for Programming Languages
FMATS 5	Fifth Workshop on Formal Methods and Tools for Security, 2017
ICFP 2017	22nd ACM SIGPLAN International Conference on Functional Programming
S-REPLS 6	6th South of England Regional Programming Language Seminar, 2017

TECHNICAL SKILLS

C, Python	Comfortable with the language, few years experience
Coq, F*	Practical experience on non-trivial project
Linux	Experienced, managed my own mail and file sync servers for 6 years