

# GEORGE PÎRLEA

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## RESEARCH INTERESTS

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

## EDUCATION

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**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

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**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  $\lambda_{\text{Rust}}$  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 FStar 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

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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

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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

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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

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

## ACADEMIC EVENTS ATTENDED

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

## TECHNICAL SKILLS

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