Some important things about George Pîrlea

(last updated: November 1st, 2019)

2019

- Now working at **Zilliqa Research**, currently focused on blockchain sharding strategies and lightweight protocol verification

- Internship at **MPI-SWS** under the supervision of **Derek Dreyer** (and with great help from Ralf Jung and Michael Sammler); extended the Lambda Rust semantic notion of types to account for pinning and formally verified the std::pin module in the Rust standard library

  ◦ gave a talk on Toychain, flash talk at institute retreat, and end-of-internship presentation
  ◦ came in with no prior experience of working on type systems or Iris; Lambda Rust was the first type system I've seen formalised

- Co-organised ICFP 2019 Programming Contest with **Ilya Sergey**; was responsible for contest infrastructure (server-side – including the simulated "blockchain", grading automation, live rankings generation) and data analysis

  ◦ won (team effort) the "guess the programming language" contest at PLMW @ ICFP 2019

- Visited NUS for 3 weeks in spring; talked with faculty and students

- Submitted my MEng thesis (advised by **Earl Barr** and **Ilya Sergey**), Toychain: Formally Verified Blockchain Consensus; I improved the Toychain model by removing core simplifying assumptions (notably hash injectivity) and extracted the first formally verified implementation of a Nakamoto-style blockchain consensus protocol; graduated with First Class Honours

2018

- Was student mentor (scheme details) for ten first year undergraduate students in the Computer Science department at UCL; responsibilities included helping freshmen settle in, giving academic advice (e.g. how to select modules, how to get a reference letter), highlighting available resources on campus; weekly meetings with students for 10 weeks in their first term

- Group research project with **Jens Groth**, working on expander graph constructions, with applications in cryptography

- Internship at **Microsoft Research Cambridge**, working with **Christoph Wintersteiger**, Cédric Fournet, Antoine Delignat-Lavaud, and Santiago Zanella-Beguelin

  ◦ developed FStar formalisation of the Coco (confidential computing) consortium blockchain framework and proved sequential consistency for the model
  ◦ found 2 safety bugs in the Coco C++ implementation
  ◦ gave Toychain talk, end-of-internship talk, and presented at "Internship Graduation Day" poster session

- Published Mechanising Blockchain Consensus with **Ilya Sergey** and presented at **CPP 2018**
  ◦ received POPL 2018 professional activities grant

2017

- Travel scholarship PLMW @ ICFP 2017 in Oxford
- <u>Internship</u> with **Ilya Sergey** at **UCL** working on formalising blockchain consensus protocols; formalised and verified a parametric blockchain consensus protocol in Coq
    - gave Toychain practice talks at UCL and presented at UCL PPLV reading group
- Developed <u>BitKariero</u>, a decentralised record of credentials, built on Ethereum and IPFS (team effort)
- Won the **COMP205P: Software Engineering and HCI** *Scenario Week* <u>competition</u> (team effort)

Pre-history

- Graduated from Tudor Vianu National High School of Computer Science in Romania

    - scored in top 1% nationally at standardised end of high-school exams

- Participated in Informatics Olympiad

    - approx. in top 100 nationally

Broad research interests

- formal verification

- distributed systems

- anonymity and privacy

- blockchains

- cryptography

Thank you *so much* for writing a recommendation letter for me!

If there is anything you would want more details about, please do not hesitate to ask.