

Philip Leonard

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AIMS AND OBJECTIVES

Currently a tech lead at Picnic Technologies in Amsterdam. I lead the team which develops the automated purchasing and forecasting systems, as well as the stock keeping systems. Accurate and reliable automated forecasting is one of Picnic's unique selling points, keeping waste much lower than a typical supermarket while still fulfilling our customer demand. I have worked extensively on bringing reactive programming to Picnic and support making a vast array of reactive backend systems, helping us scale from a small startup to a medium sized scale-up. Before that I was a Software Engineer at Bol.com in Utrecht where I was working on the Android and iOS mobile applications, and helping to design and implement their new reactive API. I have a broad interest in technology, from backend development to data science, but solving problems through the means of elegant, scalable and reliable solutions is where I reach my full potential. I love presenting and sharing my knowledge, and have presented at a number of tech meetups and conferences.

EDUCATION

UNIVERSITY OF CAMBRIDGE | MPhil ADVANCED COMPUTER SCIENCE | DISTINCTION

Sep 2014 - Jul 2015 | St Catharine's College

- Scholarship: Advanced Computer Science MPhil Scholarship, 2014/15
- Modules: Research Skills, Foundations of Computer Security, Advanced Operating Systems, Current Applications and Research in Computer Security, Data Centric Systems and Networking, Algebraic Path Problems.
- Dissertation: "Graph Compression in the Semi-External Memory Environment: A Community Detection Approach". Devised algorithms for the compression of big graph data, in order to reduce computational overheads during analysis.

UNIVERSITY OF LIVERPOOL | BSc HONS COMPUTER SCIENCE | 1ST CLASS HONOURS

Sep 2011 - Jun 2014 | UoL and XJTLU University China

- First Year: Modules: Java, Databases, Computer Systems, Foundations of Computer Science, Algorithmic Foundations, OS Concepts, Logic in CS.
- Second Year: Exchange student at XJTLU in Suzhou, China. Modules: Software Engineering, Advanced Databases, Internet Principles, AI, Advanced OO Programming, Group Software Engineering Project, Complexity of Algorithms.
- Third Year: Dissertation: "Random Number Generation using Genetic Programming". Key modules: Efficient Sequential Algorithms, Biocomputation, Robotics and Autonomous Systems, Formal Methods, Semantics of Programming Languages, Multi Agent Systems.

SKILLS

TECHNICAL

Experienced with:

Java • Reactor • RxJava
• Mongo • C • Git
Android • Maven • REST •
Microservices • Spring;
MVC, Cloud, Boot

Familiar:

Python • Keras • SQL •
Swift • Obj-C •
WebSockets • Gradle
Docker • Jenkins • Vert.X

WORKING SKILLS

- **Logical and thorough**, and like to see a task through to completion. Following through on my research projects and side projects, for example by publishing my university work.
- **Research minded**. Published and involved in Evolutionary Computation. Also interested in Graph Theory, Big Data Mining, Distributed Systems, Compression Research and Security.
- **Leadership**. Take great pride in leading a team of 4 developers at Picnic to produce one of it's key unique products. I mentor 4 other developers and one thesis intern.
- **Hungry to learn**. Switched between two different research areas. Learnt Dutch to a social level in a year. Use side projects to teach myself new technologies in my spare time, and love to learn from others at meetups and conferences and giving back in the same format.
- **Eager for new experiences**. Jumped at the opportunity to study abroad in China, and work in France when I was 18. I like to challenge myself in various ways, and not just academically.

AWARDS AND ACHIEVEMENTS

2016	St Catharine's College	College Prize and Mr Spurstow (1646) Scholarship	£200
2015	St Catharine's College	Research Travel Grant	£340
2015	ACM SIGEVO GECCO	Student Travel Grant	\$300
2014	University of Cambridge	Advanced Computer Science Scholarship	£4000
2014	University of Liverpool	Computer Science Project of the Year Award	£100
2013	Diabetes App Challenge	Finalist Award	£200
2012	University of Liverpool	Award Fund Travel Scholarship	£500

TALKS

2019	GOTO Amsterdam	Reactive I/O: The Key to Absolute Reactivity
2019	Picnic Meetup	Reactive I/O: The Key to Absolute Reactivity
2019	Tweakers Conference Utrecht	RxJava: 5 Steps To Reactive Enlightenment
2018	Picnic Meetup	RxJava: 5 Steps To Reactive Enlightenment
2015	ACM SIGEVO GECCO Madrid	Evolving Random Number Generators Using Genetic Programming

EMPLOYMENT

PICNIC Amsterdam, Netherlands | February 2017 - onwards | Tech Lead

- Tech Lead of a team of 4 devs in the purchase forecasting team. Our product is responsible for predicting customer ordering, placing wholesale orders with our suppliers and coordinating integrating with suppliers and their data feeds.
- Introduced Picnic to Reactive Programming. Helped scale Picnic from a startup with one warehouse and a few thousand customers to scale-up operating in two countries, with 6+ warehouses and hundreds of thousands of customers.

BOL.COM Utrecht, Netherlands | September 2015 - September 2016 | Software Developer

- Android and iOS developer, introduced Android fingerprint login for payments to the **first webshop** in BE & NL.
- Then worked in a team of 5 on designing and developing the new reactive API in ReactiveX, implementing Netflix Hystrix, Ribbon and Zuul technologies and helping form new architectural standards for microservices within bol.com.

PROJECTS AND RESEARCH

FETCH ON ANDROID | 2016 - 2017

Crowdsourced delivery service called Fetch, which is in essence the Airbnb answer to the delivery domain. The service allows anyone to order whatever they want, from wherever they want and allows community verified freelance deliverers to specify their own terms for the delivery of those goods, be it from pizzas to Marktplaats items. The backend comprises of 4 Spring Boot microservices and including an API, implemented in Netflix's RxJava, Ribbon and Hystrix technologies and using MongoDB). **See here for a video** introduction of the Fetch android app. The app is native Android.

EVOLVING RANDOM NUMBER GENERATORS USING GENETIC PROGRAMMING | 2013 - 2015

First author of the paper **Efficient Evolution of High Entropy RNGs Using Single Node Genetic Programming**, which was published and presented at the ACM GECCO conference in Madrid, July 2015. I compared two variants of the Genetic Programming paradigm for the task of evolving high entropy Pseudo Random Number Generators (PRNGs), that outperformed both common-place PRNGs such as the C Programming Language PRNG, and even Hardware Random Number Generators. I also wrote a short essay on the subject that was published in the May 2015 edition of the **Cambridge University Computer Lab Journal**. I also won the University of Liverpool BSc Computer Science project of the year award.

BIG GRAPH DATA COMPRESSION | 2015

For my **masters thesis** work at the University of Cambridge, I devised a community detection based compression algorithm to reduce the delta encodings for big graph data. By reducing the sizes of big graph data (such as the Twitter social network) by up to 52% over the CSR compression mechanism, I was able to reduce the run time of algorithms such as PageRank by up to 55% over CSR and achieve run time improvements over the state of the art single machine graph processing system, GraphChi.

OPEN SOURCE | 2014 - ONWARDS

Contributor to **GraphLab / PowerGraph** large scale distributed machine learning and graph processing framework on GitHub. Specifically I have incorporated a set of more optimal graph colouring algorithms into the distributed framework, including a trade-off degree ordered approach, and a saturation degree ordered colouring approach. GraphLab was eventually acquired by Apple under the name **Turi Create** - their popular open source machine learning framework. Also contributed to the popular reactive programming frameworks **RxJava** and **Reactor**, and also to Picnic's own **Reactive** toolset.

INTERESTS

Love adrenaline sports; kickboxing, mountain biking, and snowboarding/skiing. I love to travel and experience new cultures; in the last few of years I have explored China, Hong Kong, New Zealand, Indonesia, Malaysia, Japan, Singapore and the United States. I am also a lover of music. I am an avid guitar player, and I enjoy attending concerts and festivals.

LINKS

- Website: **philleonard.io**
- Play Store Page: **goo.gl/tvE6XI**
- GitHub Profile: **github.com/philleonard**
- LinkedIn: **uk.linkedin.com/in/ppleonard**
- **links are in bold**