

Miguel Pereira Torres Costa
25 July 1995
Rua Pintor Júlio Ramos, 356
Guilhabreu, 4485-265
Vila do Conde, Portugal
Cell (UK): +44 07541712209; Cell (Portugal) +351 918310670
miguel.torres@worc.ox.ac.uk

I am a mathematician interested in implementing
algorithmic solutions to real life problems.

EDUCATION

- 2005 - 2013 **Grande Colégio Universal High School**
Physics, Maths, Biology, Chemistry, English, French, Portuguese Literature
- 2013 - 2017 **MMath at University of Oxford**
Classification: First Class
1st year: Groups and Group Actions, Linear Algebra, Analysis, Probability, Design and Analysis of Algorithms, Functional Programming, Imperative Programming.
2nd year: Linear Algebra, Differential Equations 1 and 2, Metric Spaces and Complex Analysis, Rings and Modules, Integration, Probability, Topology, Number Theory, Graph Theory and Projective Geometry.
3rd year: Topology and Groups, Algebraic Curves, Algebraic Number Theory, Banach Spaces, Hilbert Spaces, Communication Theory, Martingales Through Measure Theory, Continuous Martingales and Stochastic Calculus.
4th year (current): Algebraic Topology, Algebraic Geometry, Stochastic Differential Equations, Functional Analysis, Quantum Computer Theory, Combinatorics.

WORK EXPERIENCE

- Jul – Sep **Farfetch**
2015 Summer Internship requiring the use of Machine Learning techniques in Python to solve a commercial problem. My project was continued after I left by other programmers of the company. I used Python, Microsoft Labs, Microsoft SQL and R.

ACADEMIC EXPERIENCE

- 10th Mar 2012 **Hands on Particles**
Masterclasses on Particle Physics organized by the *European Particle Physics Outreach Group*
Participant
- 2010 - 2013 **Delfos Project** (Mathematical Weekend School for pre-University students)
Met many friends with whom I still share mathematical insights and interesting problems.
Developed the ability to work on a problem for several hours without losing motivation.
- July & August **London International Youth Science Forum**
2014 Participant - Entry Funded by the Calouste Gulbenkian Foundation
Was directly exposed to different scientific areas, varying from neuroscience to efficiency of power cells
- 5th Nov **G-Research Algorithmic Trading Competition** (Stock Exchange Simulator)
2014 Each team had to write a micro transaction manager algorithm, and then we would all compute live with stock values based on a random real sample
1st Place
- June & July **Computing the Average Rank of Elliptic Curves** (Summer Project at Oxford University)
2016 I used Sage Math and its Elliptic Curve related packages to compute the average Rank of Elliptic Curves under an ordering based on the height of its coefficients. We were trying to observe the rank's asymptotic behaviour and compare it with the Birch and Swinnerton-Dyer conjecture (one of the Millennium Prize Problems).

SKILLS

- IT** Theoretical basis in Imperative Programming, Functional Programming and Design and Analysis of Algorithms.
Medium proficiency in Python.
Basic proficiency in C++ and Haskell.

Software Microsoft Office, Open Office, Anaconda & Jupiter Notebooks, Mathematica, SketchUp, R.

Driving License Category B

OLYMPIADS

May 2009 **Portuguese National Chemistry Olympiad** (Silver Medal)
November 2010 **Paulista Math Olympiad** (Portugal and Brazil) (Bronze Medal)
March 2012 **Portuguese National Math Olympiad** (Gold Medal)
July 2012 **Portuguese Speaking Countries Math Olympiad** (Silver Medal)
November 2012 **Paulista Math Olympiad** (Silver Medal)
March 2013 **Portuguese National Math Olympiad** (Bronze Medal)
August 2013 **Portuguese Speaking Countries Math Olympiad** (Gold Medal)
September 2013 **Ibero-American Maths Olympiad** (Bronze Medal)

LANGUAGES

Native/Bilingual Proficiency **Portuguese**
English

Professional working **Spanish**
Proficiency

Basic Proficiency **French**

INTERESTS & ACTIVITIES

Puzzles I have always enjoyed spending hours on riddles. This includes working with Lego, coding problems, developing the optimal strategy for board games, real time strategy PC games, wondering about philosophical paradoxes, amongst others.

Sports Oxford University Handball team 2014-present
Oxford University Quidditch team 2013-2014
College level Football, Basketball and Pool

REFEREES

João Sousa Physics PhD, University of Aveiro (2014)
Data Scientist at Farfetch, Portugal, joao.gomes@farfetch.com

Richard Earl Director of Undergraduate Studies, Mathematical Institute, University of Oxford, richard.earl@maths.ox.ac.uk
Tutor in Mathematics and Tutor for Admissions, Worcester College, University of Oxford.