MADALINA-IOANA SAS

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WORK EXPERIENCE

Netcraft — *Internet Services Developer*

OCT 2017 - FEB 2020 | Perl, Javascript, SQL

Working in content filtering and automated countermeasures against phishing sites and malware. Currently running the Netcraft web server survey which collects statistics for all websites on the internet.

King's Clinical Trials Unit — *Clinical Software Analyst Assistant*

APR 2016 - DEC 2016 | C# .NET, SQL, iOS

Full-stack development of a complex network of bespoke systems for building clinical trials, including automating the randomisation process, treatment management and user management systems, data validation and trial design.

King's Clinical Trials Unit — *Support Programmer*

OCT 2014 - APR 2016 | C# .NET, SQL, Wordpress

Design and development of web applications, testing and evaluation of production code. Industry-standard documentation and medical SOPs.

Imperial College London — *Undergraduate Researcher (UROP)*

AUG 2015 - OCT 2015 | Program logic and proof

Learning a program logic for Time and Data Abstraction (TaDA), based on Hoare, separation and temporal logic with the purpose of proving the partial correctness of concurrent data structures such as Red-Black Trees.

Google — *Software Engineering Intern*

JUN 2014 - SEP 2014 | Java, Guice, Clojure JS

Front-end and back-end development for the cloud.

Freelance — *Designer / Developer*

2013 – 2017

Supported start-ups and businesses with technical expertise, design and branding, or software / web development.

SKILLS

Software engineering
Full-stack development on web and desktop, automation and reliability, numerical simulations

Artificial Intelligence
Statistical Natural Language Processing, Neural Networks, Logic-Based Learning, Bayesian Networks

Security & reliability
logic proof and verification, static analysis, network security, cryptography

Web design & development

Database Administration

Graphic design & photography

LANGUAGES

Python, Haskell, Perl, C#, C++, JavaScript, SQL, Matlab, Scala

Romanian (native)

English (bilingual)

EDUCATION

Imperial College London, UK — *Computing MEng (Artificial Intelligence) - first class degree*

OCT 2013 - JUN 2017

- favourite subjects include information theory, computational neurodynamics, network security, modal logic, Bayesian statistics, cryptography, machine learning, operating systems where we completed the PintOS exercise.
- master's thesis on privacy, internet architecture and geolocation supported by a network monitoring tool

'Ovidius' Theoretical High-School, Constanta — *Mathematics and Intensive Computer Science*

SEP 2009 - JUN 2013

AWARDS

2017 | **SnowWall**— *Imperial College Distinction*
The project has been presented at the Imperial Department of Computing Distinguished Projects Gala, and chosen for the guest presentation with more than 300 members of the public, including school students, present.

2017 | **1st prize - InterAce Cybersecurity Challenge 2017**
A cyber-security competition between the UK's best universities, named Academic Centres of Excellence..

2013 | **Computational Morality** — *Imperial College Corporate Partnership Prize*
The project was awarded best in category, best presentation and best website.

PROJECTS

2019 | **Hascell** — *Cellular Automata Simulations*
A simulation library written in Haskell to produce multiple generations of lattice-based cellular automaton using concepts from category theory.

2017 | **SnowWall**— *A visual firewall for the surveillance society (Master's Thesis)*
A Windows-based graphical tool built in C# which communicates with the Windows networking interfaces to allow users to visualise the flow of data going out of their machine, with geolocation and organization. The project was awarded a distinction by Imperial College, was presented at the London Met Cyber Unit, and was a finalist of HutZero 2018, a cyber-security start-up incubator.

2016 | **Scanalysis** — *Static Analysis Tool*
A tool written in Scala which parses a piece of code and transforms it into a logic statement, verifying against a set of pre and post-conditions whether the code is correct.

2016 | **Seek** — *Language Analysis Tool*
An Information Retrieval tool written in Python for natural language processing on large corpora. Can extract, with good accuracy, topics, names, and summaries from unstructured text.

2015 | **Doodlr.js** — *Collaborative board drawing web application*
An application built in Javascript with real-time collaborative digital painting features.

2014 | **The WACC Compiler** — *A compiler built from scratch*
A compiler for a simple C-like programming language, implemented in Haskell.

2014 | **RaspberryDots** — *ARM Assembler and Emulator*
Assembler and emulator for ARM architecture implemented in C for interacting with a Raspberry Pi to encode a sequence of characters into a sequence of blinks on a set of LEDs.

2013 | **Computational Morality** — *Research project*
A project about logical models for morality and their use for artificial intelligence applied to decision-making for trolley problems.

2012 | **Fractal Geometry** — *physics project*
Exploring iterative generation of fractal structures using graphical libraries available in C#.