Raul Butuc

Curriculum Vitae

"Virtually, anything is possible"

Education

2014–2018, with 2016 in industry — **BSc Software Engineering**, *The University of Manchester*, Manchester.

- Studied (1st year):
  - OOP in Java, Mathematics, Computer Architecture, Computer Engineering.
  - Computation, Distributed Systems, Artificial Intelligence.
- Studied (2nd year):
  - Software Engineering, Algorithms and Imperative Programming, Operating Systems, Machine Learning and Optimisation, Databases, Computer Networks
  - Distributed Computing, Symbolic AI, Computer Graphics and Image Processing, Graph Theory (Faculty of Mathematics)

2010–2014 — **Baccalaureate**, *"Emanuil Gojdu" High School of Oradea*, Oradea, Bihor, Romania.
Attained **9.85** (out of 10) in **Mathematics** and **9.60** (out of 10) in **Computer Science**

Experience

June 2016–June 2017 — **Technology Analyst Intern**, JP Morgan Chase & Co., Bournemouth.
Started my industrial year internship working for JP Morgan Chase & Co. in the Bournemouth offices. I've joined the Derivatives & FX team within the Corporate & Investment Banking division. So far I have worked on a 3D data visualization project (C++14 and VTK) which helps establish the diagnostic of bottlenecks in the system whenever these occur, as well as present a simplified visual tool for the flow of data through the system. Currently, I am working on providing internal automation tools (Python) as well as cloud development (Java/Spring/AWS). So far I have:

- Got a first-hand experience with industry standard tools for Agile development (Jira/Jenkins/etc).
- Improved my Java skills and learned the Spring Framework.
- Written unit and integration tests for the libraries.
- Built a 3D Data Visualization tool from scratch.
- Highly improved my Python skills during the development of internal automation tools.

2015–2016 — **ASP.NET MVC Developer**, My2Be LTD, Manchester.
Worked as a web application developer for my2be Ltd for one year, as part of a two-man team. I have been responsible for both front-end and back-end development of the website using ASP.NET MVC (Razor for UI and C# for writing the API as well as for Models/Controllers). Working on this project I have:

- Learned about the Model-View-Controller software architectural pattern using ASP.NET MVC.
- Greatly improved my C# and JavaScript skills.
- Got a first-hand experience with the asynchronous pattern.
- Gained knowledge about and used project management software similar to Jira (Trello with Kanban board).
- Used unit testing for all parts of the API to ensure that everything worked as expected.
- Improved my team working skills as well as the way I manage my time.

2014–2016 — **Occasional Assistant (Hornet Representative)**, IT Services, Manchester.
Worked as an Occasional Assistant in the Halls of Residence Networking team within the Directorate of IT Services, University of Manchester. I have been responsible for the first line support/resolution of all wired and wireless issues reported within Manchester University Halls of Residence. Some of the outcomes include:

- Acquired better time-management and organizational skills.
- Improved my social skills and the general understanding of users' needs.
- Got a better overview at how team-work really works in a high-stress environment.
- Learned how to diagnose several network-related issues (hardware faults).
- Was offered to sign a contract for the next year (September 2015 - June 2016) as a result of my performance within the team during the current year.

2012 Summer **Summer Internship Project**, S.C. Alien Concept S.R.L., Oradea, Bihor, Romania.
Developed the project **Taxi Finder** for Android smartphones. During this summer I had the first encounter with both Java and the Android SDK, making the achievement of finishing the main part of the project even more rewarding. Detailed achievements:

- Found out more about OOP concepts.
- Learned the Java programming language.
- Understood and used part of the Android software development kit.
- Used SQLite for the first time and integrated a reasonably-sized database within the application.
- Enhanced my self-teaching and problem solving skills.
- Got a better overview of real-life challenges by being allowed to deal with most of the issues that I had encountered, having to find my own ways of overcoming them.

Achievements and awards

2017 **Certification** – *Deep Learning in Tensorflow*

2016 **Contest** – *HackerRank Holiday Cup* **Silver Medal** in HackerRank's rated programming contest after solving 4 out of the 5 given problems.

Hackathon – *StudentHackIV* Developed an AI web-based application (**FitnessAid**) that makes use of **speech recognition**, **natural language processing** and **sentiment analysis** to provide the user with a custom training programme (background music is chosen based on their mood).

Hackathon – *HackUPC Barcelona* Developed a system (**SkyPlanner**) that makes use of SkyScanner's API and by using **natural language processing** as well as general machine learning principles offers users the unique experience of self-tailored trip.

Contest – *Google Hash Code* Took part in the Google Hash Code contest as part of a 4-man team. We have implemented a solution making use of Machine Learning (**K-means** algorithm).

2015 **Contest** – *Catalysts Coding Contest* Achieved **rank 22** (out of **75**) in the online round of the CCC after solving 4 out of 7 levels of the given problem (**Hot Doc's – Automatic Surgery**).

Hackathon – *GreatUniHack Manchester* Developed a new kind of auction system – **TradeIt**.

Contest – *Google Code Jam* Achieved **rank 1266** (out of ≈**27500**) in the qualification round.

2014 **Hackathon** – *McDHack* Developed an Android mobile application which would help ease the never-ending queues at McDonald's.

Olympiad – *National Olympiad in Computer Science* Honorable mention at the county stage.

Olympiad – *National Olympiad in Mathematics* Honorable mention at the county stage.

2013 **Contest** – *Catalysts Coding Contest* Achieved **rank 83** (out of **242**) in the Cluj CCC after solving 1 out of 5 levels of the given problem (**Skyscraper**).

Olympiad – *National Olympiad in Information Technology* **Silver Medal** and Honorable mention (**5th place**) at the **national stage**.

Contest – *National Contest "History and Society in a virtual dimension"* **1st place** at the county stage – website development.

Olympiad – *National Olympiad in Computer Science* Honorable mention at the county stage.

Olympiad – *National Olympiad in Physics* Honorable mention at the county stage.

2012 **Olympiad** – *National Contest "History and Society in a virtual dimension"* Honorable mention at the county stage – website development.

2009 **Certification** – *ECDL Core Certificate* Passed the 7 modules having all the grades **above 90%**.

Computer skills

Programming **C++14/17**, **C#**, **ASP.NET MVC**, **Python**, **Machine Learning**, Java, LaTeX, ARM Assembly, Verilog, HTML, CSS, JavaScript, MySQL, Git.

IDEs Strong experience in **Microsoft Visual Studio**, **Vim**, **IntelliJ**, Eclipse, Android Studio.

Operating Systems Extended experience with **Microsoft Windows** XP, Vista, 7, 8, 8.1 and 10.
Knowledge of Bash scripts and working with **UNIX** on various platforms (eg: Raspberry Pi).

Office skills Experienced user of the **Microsoft Office** suite (ECDL Core Certification).

Interests

Programming

- A while back I started working on the implementation of a data structures **library** in C++. I especially enjoyed programming my classes so that they would be compatible with all the already existing Standard Template Library algorithms by following specific patterns (where possible).
- As of April 2017, I have started self-teaching Machine Learning with the help of Stanford University's materials from Coursera as well as other online resources. So far I have learned and successfully implemented **linear regression**, **logistic regression**, **softmax regression** applied to handwritten digits recognition, a **single layer feedforward artificial neural network**, a **multi-layer artificial neural network**, an **artificial neural network** model to solve a business issue, a **convolutional neural network** applied to handwritten digits recognition to showcase the accuracy improvement as opposed to standard **softmax regression** and last but not least a **object recognition convolutional neural network** that distinguishes between 10 different classes. I am currently starting to learn about **recurrent neural networks** (**long short term memory**, etc.) as well as **deep reinforcement learning** and the so-called "**one-shot learning**" (**Bayesian program learning** and **memory augmented neural networks**).
- In my spare time I: participate in **hackathons**, self-teach various programming related subjects and enroll in online courses on platforms such as **Microsoft Virtual Academy**, **Pluralsight**, Coursera, Udemy, etc.

Gaming

Video games are a way for many people to express their creativity. Personally, I enjoy the challenging element of recreational video gaming. In my spare time I play various kinds of games, most of which enable me to develop my dexterity, short term memory, critical decision making and analytical thinking. A short sample list would be: Osu, SuperHexagon, Chess, Lumosity's games, etc.

References available on request