Luigi Brancati | M.Sc. Physics

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Summary

Graduated in Theoretical Physics (M.Sc.), I have an academic background and project experience in computer programming, computer simulations of physical systems and quantum information theory. After working for one year in the field of IT consulting, I am looking for new challenges where to use and improve my knowledge and skills.

Experiences

Deloitte Risk Advisory — **Milan (Italy)**
Data Management & Risk Analyst — *Feb. 2019 - **Current***
- Development of Qlik Sense/View dashboards for major clients
- Data modeling using SQL/SQL Lite, customization of graphs using JavaScript, HTML/CSS

University of Trieste — **Trieste (Italy)**
Curricular Internship — *Apr. 2018 - June 2018*
- Introduction to the mathematical tools needed for the master's thesis
- Research review on quantum information topics: quantum channels and compression

Education

University of Trieste — **Trieste (Italy)**
Master's Degree in Theoretical Physics — *Oct. 2016 – Dec. 2018*
GPA 29.17/30, Final Mark: 110/110 with honors

University of Calabria — **Rende (Italy)**
Bachelor's Degree in Physics — *Oct. 2012 – May 2016*
GPA 28/30, Final Mark: 110/110

Leonardo Da Vinci High School — **Reggio Calabria (Italy)**
High school diploma in Sciences — *Oct. 2007 – July 2012*
Final Mark: 100/100

Computer skills

General

Beginner: Python, SQL/SQL Lite, JavaScript, HTML/CSS, PowerBI

Intermediate: C, Mathematica, Linux, Microsoft Windows, Qlik Sense/View

Advanced: C++, LaTeX, Gnuplot, Microsoft Office, Numerical Algorithms, Montecarlo Algorithms

Simulation and Algorithms

Introduction to C++ — *1st year bachelor*
Final personal project:
Random search-tree for a card playing game using Object-Oriented Programming

Numerical Methods for physicists — *2nd year bachelor*
Topics:
LU decomposition, Newton algorithm, Numerical integration, ODEs solving methods

Computational Physics Laboratory — *1st year master*
Final personal project:
Simulation of the percolation on a square grid using Newmann-Ziff algorithm

Seminars on Computer Science — *2nd year master*
Final personal project:
Simulation of an Ising spin system using Williams-Kalos algorithm to minimize resources usage; performance profiling

Thesis work

Master Thesis

Title: **Non-Markovianity and Backflow of Information in open quantum systems dynamics**

Description: Non-Markovianity is a feature of quantum systems time evolution and has drawn much attention in recent years due to its potential applications in the field of quantum information and technologies. In this thesis I studied and attempted to reconcile the two main theoretical definitions of this feature.

Bachelor Thesis

Title: **Irreversibility and the Arrow of Time**

Description: An entropy production mechanism allows to distinguish a thermodynamic quantum process from its time-inverted counterpart. I studied the theory and an experimental realization devised to identify this feature.

Publications

Entropy (2019) **F. Benatti, L. Brancati**
Quasi-Entropies and Non-Markovianity *Oct. 2019*
doi: 10.3390/e21101020

Languages

Italian: Mothertongue
English: Fluent *IELTS Academic: 8.0 overall score - Very Good User*
French: Beginner

Interests

Sports: Basketball, swimming, soccer, kayak
Interests: Traveling, videogames, computer programming, amatorial translation from english to italian and vice versa