

# 1 EARLY EDUCATION

*Please provide any additional information relevant to your academic background which should include the name, location and dates of any training courses attended.*

## 1.1 SCHOOL YEARS

1. I was interested in simple electronics as a school boy. I made robots that navigated my room. Later on I made an automatic physiotherapy machine for the hand and printed self designed circuit boards using chemicals and a laser printer in my room at home. I used a 3D printer at school to print the gear box for the hand physio machine. I designed and soldered the electronic components from first principles.
2. I was keen on playing the piano as a teenager and did music for my leaving cert. I feel that the hand-eye co-ordination necessary for playing the piano transfers quite well to computer programming. I achieved piano grade 6 in 2009.
3. I enjoyed maths at school and I went for extra voluntary maths tutorials on Saturdays at Maynooth college. I took part in Irish maths Olympiads in Limerick and came 14th.
4. I designed and made a custom wooden desk for doing my electronics at home using the Solid Works CAD system. This desk was also equipped with a homemade air extraction system.

## 1.2 UNIVERSITY YEARS

During spare time taught myself to utilize the following software packages:

- **Solid Work** (Computer Aided Design) 2011
- **Sibelius 6** (Music Notation and Composition) 2012

Spent the following approximate number of hours learning the following computer languages between the years 2012 and 2016:

- **Python:** 100 hours
- **MATLAB:** 1000 hours
- **Mathematica:** 3500 hours
- **C:** 50 hours
- **Haskell:** 100 hours
- **Prolog:** 300 hours
- **LaTeX:** 200 hours
- **EMACS with AUCTEX:** 200 hours

During my university year in 2015 and especially in 2016 (when I dropped out of University for a year following a computer game addiction problem and various temporary psychological hassles) I reformed my lifestyle and began learning various computer languages. I completed several MOOCs online:

### 1.3 MOOCs

- **Machine Learning:** Andrew Ng (Coursera)
- **Introduction to Programming with MATLAB:** Vanderbilt University
- **Introduction to Computer Science with Python:** MIT (EDX)

Other MOOCs I Watched the lectures but not actually complete:

- Introduction to Mathematical Thinking: Keith Devlin (Coursera)
- Machine Learning: Pedro Domingos (Coursera)
- Introduction to Logic: Michael Genesereth (Coursera)
- Artificial Intelligence: (Berkeley) Dan Klein, Peter Abbeel (EDX)
- Differential Equations: Paul Blanchard (Coursera)

I have always read about the history and development of science, Computing and Astronomy since my boyhood. I thus became familiar with the life stories and work of the following scientists:

- **Mathematicians:**
  - Srinivasa Ramanujan
  - Ludwig Wittgenstein
  - Paul Erdos
  - Terence Tao
  - John Nash
  - John Conway
  - Gregori Perelman
- **Inventors and Engineers:**
  - Elon Musk
  - Christof Koch

- **Neuroscientists:**

Sebastian Seung  
Santiago Ramón y Cajal  
Christof Koch  
Warren McCulloch  
Walter

- **Astronomers:**

Carl Sagan  
Johannes Kepler  
Galileo Galilei  
Jocelyn Bell  
Christian Huygens

- **Computer Pioneers:**

Alan Turing  
Charles Babbage  
Ada Lovelace  
Douglas Englebart  
JCR Licklider  
Ken Thompson  
Dennis Ritchie

- **Physicists:**

Niels Bohr  
Albert Einstein  
Gottfried Leibnitz  
Richard Feynman  
John Bell  
James Clerk Maxwell  
Max Planck  
Erwin Schrodinger  
Albert Michelson

- **Artificial Intelligence Pioneers:**

Yoshua Bengio

Andrej Karpathy

Geoffrey Hinton

Demis Hassabis

Pedro Domingos

Judea Pearl

Ilya Sutskever

Marvin Minsky

John McCarthy

I try and contribute to the Mathematica Community on Stack Overflow: **2442 points**

I am challenged by solving programming problems on Project Euler: I have solved **87**