

# Aaron Leonard

Computer Scientist

✉ aaronleonard@risingthumb.xyz

🐙 github.com/malod219

🌐 risingthumb.xyz

## Personal Profile Statement

Disciplined, ambitious and intrinsically-motivated Computer Scientist attempting to adhere to high standards and principles. I aim to make high quality, extensible, terse and obvious programs, while learning new techniques and methods. I am also profoundly deaf from birth in both ears with a cochlear implant, although this has not affected my studies very much due to the primarily textual nature of Computer Science. As far as extrinsic motivations go, I don't care for it beyond a comfortable life.

## Notable projects and achievements

**Nynavigator** Custom-made GUI for a Minecraft mod called Baritone that utilises effective A\* pathfinding, built with Forge.(2019-2020)

**Website** My personal website where I host my blogs as well as any remarkable projects, as well as hosting my email server and some game servers.(2018-2020)

**Game Chronology** A full chronology of all games I have released. As of the time of writing it numbers 13 games.(2014-2020)

**UTC News Archive** Archive of all news related to a game clan in text-form. Compiled using a selection of POSIX-Compliant Shell Scripts, and created due to Reddit being unreliable and laggy.(2020)

**Endeavour Award** Awarded by Cardinal Hume Catholic School in 6th form for excellent work during my A Levels.(2018)

## Education

**2018-2021** Studying for BSc in Computer Science specialising in Games Engineering, Newcastle University. I am well on my way to a first class degree.

### Stage 2 (81.1%)

- Database Technology (94%) — SQL, Relational Databases, Entities
- Operating Systems (87%) — C programming language, Concurrency, Schedulers, Kernels
- Software Engineering Team Project (83%) — Teamwork, Android Studio, Agile development
- Algorithm Design and Analysis (79%) — Algorithms, Big O notation, algorithm design techniques
- Software Engineering (74%) — Overture, VDM, Unit Testing
- Computer Networks (67%) — TCP/IP, OSI model layers, physics and implementations

### Stage 1 (75.7%)

- Mathematics (87%) — Discrete mathematics, Set theory, Proof, Propositional/Predicate logic
- Programming 2 (79%) — I/O, Inheritance, Interfaces, Generics, Data Structures, Event Driven Programming, Defensive Programming, Factories, Composition
- Programming 1 (78%) — Java basics, OOP Programming basics, Types, Methods, Recursion
- Website Design and Construction (75%) — Web architecture, Web Content, CSS3, Javascript
- Software Engineering Professional (70%) — Git, Bash, Agile manifesto, Professionalism

- Computer Architecture (65%) — Boolean Logic/Circuits, Microarchitecture level, Cache, ARM Microarchitecture, Secondary Memory, Assembly Language programming

**2016-2018** 6th Form A levels: A\* Maths, B Further Maths, B Physics.

**2011-2016** GCSE: 9 A-A\*s including Mathematics, Computer Science and English. 2 Bs.

## Workflow, Tools and Languages

I use purely Linux, but have past experience with Windows 10, having used it for Gamemaker studio 2 and Hammer level editor. I uses Arch Linux, using LARBs for installation followed by GNU Stow to deploy my Dotfiles for an optimal developing environment. As there is a distinct difference between scripting and programming, the 2 have been distinguished below.

- The tools: ssh, gopher, vi(and its variants), apache, tmux, L<sup>A</sup>T<sub>E</sub>X, Aseprite, Gamemaker Studio 2, Gamemaker Studio 1.4, Hammer Editor for the Source Engine, git, Microsoft Office and Libre Office Software, Eclipse IDE, Godot, and Android Studio. I also
- Scripting Languages: POSIX-Compliant Shell Script, Bash, Python3, Javascript, HTML/CSS, GDScript, GamemakerLanguage(GML), Lua.
- Programming Languages: Java, C, ARM Assembly Language.

## Soft skills

- **Initiative** In 2014 I started developing games using Gamemaker Studio. I had very little experience at the time besides writing a Caesar Cipher in Python. Now it numbers 13 games developed in different engines and languages, primarily self-taught.
- **Independence** I refrain from Social Media and maintain and set up my own personalised and customised development environment that is optimal for me using primarily source-available if not FOSS software so I can modify and patch it as I like.
- **Teamwork** Some of my projects require teamwork. Communicating with Artists to achieve an artistic vision within the limitations established by the engine. In other cases I contribute some code to open source projects, as well as writing patches for what I want and sharing them with others.
- **Creativity** The vast majority of my projects required creativity. The combination of different effects, algorithms or data structures to achieve precisely what I want, while maintaining extensibility so further development can be made.

## Interests and hobbies

Gaming with friends on weekends. Writing scripts to improve my life on a PC. Reading Fiction and Non-fiction, of the Fiction primarily Sci-Fi works. Of the Non-Fiction primarily books on philosophy, and some on programming mainly with regards to Games development.

## References

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