ALEXANDER FALK

Profile:

Technology Consultant, Programmer, MSc. Computer Game Engineering, with credits on the games *The Lego Movie 2 Videogame (2019)* and *Iron Harvest (2020)*, as well as a year working on *Lego Star Wars: The Skywalker Saga (scheduled for 2022)*. Working mainly on Gameplay elements using C++ and C#.

MPhys with honours in Astrophysics developing problem solving & critical thinking skills. I got the chance to fulfil my passion for acquiring scientific knowledge. I also gained experience in data analysis using Python. With special interest I developed simulations of complex planetary systems.

Internationally experienced and multi-lingual, living, studying and working in several countries across the globe and always keen to work with different people and cultures.

Portfolio: https://www.alexander-falk.com/

WORKING EXPERIENCE

since 07/2021 — **Technology Consultant**
***Salt And Pepper Technology GmbH**, Bremen, Germany*
In project as a Software developer at OHB Digital Connect, working on satellite ground systems. Creation on a web-based app to visualise satellite orbits. The app allows control over simulation duration, simulation speed and some visualisation settings.
Keywords: C#, .Net, Blazor, Javascript, WebGL, Visual Studio, Git, Microservices

12/2019 - 06/2021 — **Senior Programmer**
***King Art GmbH**, Bremen, Germany*
Implementing gameplay features into the game Iron Harvest such as abilities that in-game units use. This required close collaboration with designers, animators and artists to create the best possible features.
Part of the taskforce to ensure that units are complete and implemented to specification
Keywords: C#, Unity Engine, SVN, Visual Studio, Game logic, Maths/Linear Algebra

04/2018 – 10/2019 — **Junior Game Mechanics Programmer**
***Tt Game Studios**, Knutsford, United Kingdom*
Bug fixing in various systems of the previously released game Lego Worlds which lead to a credit in The Lego Movie 2 Videogame
Creating game mechanics on the announced game Lego Star Wars: The Skywalker Saga. Working as a team member as well as cooperating with other disciplines in order to create game mechanics from the ground up. Personally, I was responsible for "The Force" mechanic, involving physics and math problems that needed to be solved.
Keywords: C++, In-house engine, Perforce (Source Control), Agile development, Visual Studio, Game logic, Physics, Maths/Linear Algebra, Unreal Engine 4 (for an internal Game Jam)

06/2016 – 09/2016 — **Institute for Astronomy summer research student**
The University of Edinburgh, *Edinburgh, United Kingdom*
I undertook a project titled: "Analysing the creation of free-floating planets by ejection from planetary systems" with supervisor Prof. Ken Rice. It involved writing code (in python) to calculate initial conditions for planetary systems in a star cluster, running n-body simulations and computing orbital parameter.
Keywords: Python, Linux, N-Body Physics simulations (N objects that affect each other with gravity)

06/2015 – 09/2015 — **Institute for Astronomy summer research student**
The University of Edinburgh, *Edinburgh, United Kingdom*
I undertook a project titled: "Simulating orbit type and stability of an extra solar planet around a binary star" with supervisor Dr. Alex Mead which involved creating and running n-body simulations of a single planet orbiting a binary star and analysing computational data.
Keywords: Python, Linux, N-Body Physics simulations (N objects that affect each other with gravity)

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EDUCATION

07/2017 – 07/2018 **Master of Science (MSc) Computer Game Engineering** with distinction
***Newcastle University**, Newcastle, United Kingdom*

Modules including Advanced C++, Advanced Graphics for games, Advanced Physics and Networking for games, as well as a group project involving 8 programmers to create a game from scratch. In this project we had to create a multiplayer game where up to 4 players can battle each other to cover as much of the game area with their own colour paint. I took on the role of creating the networking for this game as well as implementing some gameplay features and handling any merging issues our team had within git.
Keywords: C++, OpenGL, Graphics, Physics, GitHub, Unreal Engine 4 (for a prototype), Agile, Networking, Nvidia CUDA

09/2012 - 05/2017 **Master of Physics (MPhys) with Honours in Astrophysics**
***University of Edinburgh**, Edinburgh, United Kingdom*

Completed the 5 year "Master of Physics (MPhys) in Astrophysics" degree.
Topics included: Computational Modelling, 3D climate modelling, Linear Algebra, Software Engineering, Functional Programming.

Master's Project: "Variability in HR 8799bcd" with Dr. Beth Biller
Processing and analysing astronomical images by the use of model fitting.

Senior Honours Project: **"**Planet-Planet scattering as the origin of Free-Floating planets" with Prof. Ken Rice
Running N-body simulations of a system of multiple planets and analysing ejection
Keywords: Python, Java, Haskell, GitHub, Visual Studio, Image Analysis, Physics Simulations

07/2010 – 07/2012 ***International School of Amsterdam**, Amstelveen, The Netherlands*

37 Points in the International Baccalaureate (IB) with higher level courses in Mathematics (5), Physics (6) and Geography (6)

SKILLS

Languages	**German** (Mother tongue), **English** (Fluent), basic skills in **Spanish** and **Korean**
Programming Languages	Professional experience with **C++** (2 years) and **C#** (2 years), **Js** University level experience with **C++**, **Python**, **Java**
Games Development	Professional experience with **Unity3D** (2 years), University level experience with **Unreal Engine**. Some use of **OpenGL** and **CUDA**.

Critical thinking and problem solving was a key learning outcome of my education, in both school and University.

PUBLICATIONS

Anthropogenic forcings and associated changes in fire risk in Western North America and Australia during 2015-2016. / Tett, Simon; Falk, Alexander; Rogers, Megan; Spuler, Fiona; Turner, Calum; Wainwright, Joshua; Dimdore-Miles, Oscar; Knight, Sam; Freychet, Nicolas; Mineter, Michael; Lehmann, Caroline.a
In: Bulletin of the American Meteorological Society, 05.07.2017.

INTERNATIONAL EXPERIENCE

El Salvador	*Place of Birth (1994-1995)*
Germany	*School and Work (1995-1997, 2002-2006, 2008-2010, 2019-present)*
Argentina	*School (1998-2001)*
Scotland	*School and University (2006-2008, 2012-2017)*
The Netherlands	*School (2010-2012)*
North Macedonia	*Volunteer work (Summer 2011)*
England	*University and Work (2017-2019)*

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VOLUNTEER WORK

08/2015 – 08/2017 **Webmaster**
***Edinburgh University Physics Society Committee member**, United Kingdom*

- *Renewing the domain and maintaining the website*
- *Organizing events, e.g.a trip to the observatory*

2010 – 2012 **Charity groups within the International School of Amsterdam (ISA)**:

Habitat for Humanity *Fundraising and building project in Macedonia*

Japan Earthquake Relief *Fundraising for the victims of the 2011 earthquake in Japan*

Green Team *Fundraising, organizing projects and getting the school to be more environmentally friendly. This led to getting the school an Eco-Schools award.*

Water Aid *Fundraising money for clean water and sanitation in Kenya*

Fairtrade team *Promoting Fairtrade and Selling Fairtrade goods*

ISA Special Olympics *Organizing a day of activities for mentally and physically disabled children and looking after these during the day*

INTERESTS & HOBBIES

Video games, Music, Playing Guitar, Languages, Astronomy, Science, Space, Photography, Travel

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