

# Samuel Appleby

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## Experience

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| Teaching Assistant<br>Newcastle University  | Newcastle-upon-Tyne, UK<br>Sept 2022 – June 2025 |
| <ul style="list-style-type: none"> <li>During my PhD, I was a Teaching Assistant for the School of Computing at my university, demonstrating during practical classes and marking students' coursework.</li> <li>Modules: <i>Fundamentals of Computing</i>; <i>Computer Systems Design and Architectures</i>; <i>Software Systems Design and Implementation</i>; <i>Introducing Contemporary Topics in Computing</i> and <i>Computer Applications</i>.</li> </ul> |  |
| Junior Network Programmer<br>Lucid Games Ltd  | Liverpool, UK<br>Apr 2020 – Dec 2020             |
| <ul style="list-style-type: none"> <li>Management and development of the online web service complete with documentation.</li> <li>Designing the online matchmaking filtering system for a new PS5 title, <i>Destruction AllStars</i>.</li> <li>Design and integration of the web service communication with automated systems using Unreal Engine's Gauntlet automation framework.</li> </ul>   |  |

## Education

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| Newcastle University ( <i>Awaiting Thesis Defence</i> ) PhD in Computer Science   | Jan 2022 –          |
| <ul style="list-style-type: none"> <li>Thesis: <i>On the Modelling of Temporal Data: Linear Logics in Event Logs and Deep Reinforcement Learning in Real-Time Simulations</i>.</li> </ul>   |                     |
| Newcastle University MSc Computer Game Engineering  | Sep 2020 – Aug 2021 |
| <ul style="list-style-type: none"> <li>Dissertation: <i>Networking Techniques and Strategies to Benefit User Experience in Online Multiplayer Games</i>.</li> <li><b>Grade:</b> Distinction</li> </ul>                                    |                     |
| Newcastle University BSc Computer Science   | Sep 2017 – Aug 2020 |
| <ul style="list-style-type: none"> <li>Dissertation: <i>Develop an AI Agent Using Goal Oriented Action Planning that can Demonstrate Effective Solution Finding in Distinct World Environments</i>.</li> <li><b>Grade:</b> 1:1</li> </ul> |                     |

## Publications

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| From Camera Image to Active Target Tracking: Modelling, Encoding and Metrical Analysis for Unmanned Underwater Vehicles<br><b>Samuel Appleby</b> , Giacomo Bergami, Graham Morgan <a href="https://doi.org/10.3390/ai6040071">10.3390/ai6040071</a>  | Apr 2025 |
| SWiMM DEEPeR: A Simulated Underwater Environment for Tracking Marine Mammals Using Deep Reinforcement Learning and BlueROV2<br><b>Samuel Appleby</b> , Kirsten Crane, Giacomo Bergami A. Stephen McGough <a href="https://doi.org/10.1109/CoG57401.2023.10333168">10.1109/CoG57401.2023.10333168</a> | Dec 2023 |
| Specification Mining over Temporal Data<br>Giacomo Bergami, <b>Samuel Appleby</b> Graham Morgan <a href="https://doi.org/10.3390/computers12090185">10.3390/computers12090185</a>  | Sep 2023 |
| Enhancing Declarative Temporal Model Mining in Relational Databases: A Preliminary Study<br><b>Samuel Appleby</b> , Giacomo Bergami, Graham Morgan <a href="https://doi.org/10.1145/3589462.3589491">10.1145/3589462.3589491</a>   | May 2023 |
| Quickening Data-Aware Conformance Checking through Temporal Algebras<br>Giacomo Bergami, <b>Samuel Appleby</b> , Graham Morgan <a href="https://doi.org/10.3390/info14030173">10.3390/info14030173</a>   | Mar 2023 |
| Running Temporal Logical Queries on the Relational Model<br><b>Samuel Appleby</b> , Giacomo Bergami, Graham Morgan <a href="https://doi.org/10.1145/3548785.3548786">10.1145/3548785.3548786</a>   | Sep 2022 |

## Public Projects

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Pokémon Analyser Tool



- Developed a Pokémon type analyser for game balancing (C#).
- Google API to communicate with online spreadsheet datasets.
- Used by other developers for Pokémon spin-off games.

## Skills & Technologies

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**Expertise:** Machine Learning, Reinforcement Learning, Deep Learning, Data Mining, Formal Verification.

**Debugging:** Visual Studio, Visual Studio Code, PyCharm, IntelliJ, RStudio, TeXstudio.

**Languages:** Python, C#, C++, Java, C, R, JavaScript, L<sup>A</sup>T<sub>E</sub>X.

**Databases:** MySQL, PostgreSQL, MongoDB.

**Source Control:** Git, Perforce, Jenkins.

**Web:** HTML, CSS, Node.js, Postman.

**Game Engines:** Unity, Unreal.

## Achievements & Certification

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Eindhoven University of Technology PROF. WIL VAN DER AASTLT *Process Mining: Data Science in Action* Feb 2023 – May 2023

Stanford University PROF. ANDREW NG *Machine Learning* Mar 2022 – July 2022

Newcastle University *Philip Merlin Prize for Best Dissertation by an MSc Student in the School of Computing* Sep 2020 – Aug 2021

## References

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Available on Request.