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| **Data Extraction Form** | | | | | | | | | | | | | | | | | | | | | | | |
| **Title** | Augmenting automated game testing with deep reinforcement learning | | | | | | | | | | **Authors(s)** | | Joakim Bergdahl, Camilo Gordillo, Konrad Tollmar, Linus Gissl´en | | | | | | | | | | |
| **Year** | 2020 | | | | | | | | | | **Venue** | | * Journal | | * **Conference** | | | | | * Other \_\_\_\_\_\_\_\_\_\_ | | | |
| **Quality Assessment criteria** | | | | * **QC1** | | | | * QC2 | | | | | * QC3 | | * QC4 | | | | | * QC5 | | | * **QC6** |
| **Inclusion Criteria** | | | | * IC1 | | | | * IC2 | | | | | * IC3 | | | * **IC4** | | | | * IC5 | | | |
| **Exclusion Criteria** | | | | * EC1 | | | * EC2 | | * EC3 | | | | * EC4 | * EC5 | | | | | * EC6 | | * EC7 | | |
| **Approach Used**   * Deep reinforcement learning (DRL), introduce a self-learning mechanism to the game testing framework * With DRL, the framework is capable of exploring and/or exploiting the game mechanics based on a user-defined, reinforcing reward signal | | | | | | | | | | **Type of Solution** | | | | | | | | **Yes** | | **No** | | **Unclear** | |
| Novel Technique (Method, Tool, Technique) | | | | | | | | Check mark, Wingdings font, character code 252 decimal. | |  | |  | |
| Evaluation of existing techniques  (Evaluation framework, tool, platform) | | | | | | | |  | | Check mark, Wingdings font, character code 252 decimal. | |  | |
| Supporting techniques | | | | | | | |  | |  | | Check mark, Wingdings font, character code 252 decimal. | |
| **Review dataset** | | **Total number of apps** | | | | N/A | | | | **Evaluation Method Used** | | | | | | | | Close collaboration between researchers and game testers | | | | | |
| **Total number of crawled reviews** | | | | N/A | | | |
| **Year** | | | | 2020 | | | |
| **Research Type Facet**   * Validation Research * **Evaluation Research** * Solution Proposal * **Philosophical Papers** * Opinion Papers * Experience Papers | | | | | **Solution Type**   * **Single** * Hybrid/Integrated | | | | | | | **Contribution**   * Technique * **Tool** * Comparison * Model * Framework * Prototype * Taxonomy | | | | | **Evaluation Strategy**   * Case Study * **Controlled Experiment** * Survey * Questionnaire | | | | | | |
| **Features used**   * Categorical * **Textual** * Both. | | | | | | |
| **Factors Considered** | | | Navigation of FPS type games | | | | | | | | | | | | | | | | | | | | | |
| **Notes** | | |  | | | | | | | | | | | | | | | | | | | | | |
| **Limitations** | | | * Limited to FSP games * Not all problems can be solved by RL technique | | | | | | | | | | | | | | | | | | | | | |
| **Description / Summary** | | | Deep enforcement learning (DRL) can be used to increase test coverage, find exploits, test map difficulty, and to detect common problems that arise in the testing of first-person shooter (FPS) games. | | | | | | | | | | | | | | | | | | | | | |