

ACDICT Special Grant Scheme – Final report

UPASS: An automated Academic Integrity Detecting Uncovering ICT Assignments Shared Online

Background & Objectives

The work of this project took place during Jan 2021 – Mar 2022 supported with \$12,325 in funding from the Australian Council of Deans of ICT. The overarching aim of this project was to develop a system that utilises advanced text mining techniques to monitor and alert academics when their assignment tasks and/or questions are uploaded to the internet. The system would be titled the “Upload & Plagiarise Alert SyStem (i.e. UPASS).

The proposed system was to consist of three parts:

- a. **User interface:** A web-based user submission interface by which academics can upload their assignment questions and/or task sheet.
- b. **Automated text analysis:** A text analysis and natural language processing system which will break the uploaded document into key identifying phrases (KIPs) which will act as the basis on the alert system.
- c. **Detection and alert system:** A detection and alert system which will monitor search engines for KIPS, detecting when all or part of an assignment task is uploaded. Upon detection, a notification will be sent to the relevant academic with links to the uploaded content.

The project was to be conducted in four stages:

- a. **Identify:** A review conducted to identify current research around upload and plagiarise academic misconduct.
- b. **Design & Develop:** Development of the system consisting of the three parts described in the points above.
- c. **Implement and test:** Implement and test the system, including:
 - a. Controlled testing, in which the system will be validated by uploading assignment content to websites known for upload & plagiarise misconduct and assess the effectiveness of the system in detecting uploads.
 - b. In-unit testing, in which the system will be implement and trailed within several units in Australian universities.
- d. **Distribute, educate, publish:** Distribute the system making it available to the community. Educate the community through workshops, conferences etc. Publish.

Outcomes relative to objectives:

The **identity** stage was **successfully** completed with a search results page (SERP) being identified as an effective base for an alert system.

The **design & develop** stage was **successfully** developed with some modifications to the system design. The web-based submission form was successfully created. The automated text analysis stage was identified as a challenge within the short project timeline. As a result, it was replaced with manual monitoring term selection by the user. The detection and alert system was successfully developed.

The **implement and test** stage was **successfully** completed. In particular:

- **Controlled testing:** 12 mock assessment questions were created and uploaded to Chegg, CourseHero and StackExchange. The system detection was validated, with 83% success for Chegg, 0% for CourseHero and 56% for StackExchange. The system was found to detect most content within 2 days. CourseHero was identified as a challenge for future focus.
- **In-unit testing:** The live trial of the UPASS system lasted a total of 102 days with 30 assignments uploaded to the system by 16 educators. Across the study, 527 notification emails were sent out, of which 160 contained likely uploads, and 444 contained potential uploads. Of the initial emails (sent before an assignment is released to students), 20 contained likely uploads. At the conclusion of testing, 11 educators completed the survey. 73% of responding educators reported that UPASS helped them to identify relevant instances of their assessments appearing online. Moreover, 83% of educators stated that UPASS helped them maintain academic integrity within their subjects.

The **distribute, educate, publish** stage is **ongoing**. The system has been distributed to the community via the [GitHub](#) repository. The education stage has is an ongoing process. To date, UPASS has been presented at ACDICT Learning and Teaching Academy (ALTA) 2021 and Australian Academic Integrity Network (AAIN) Forum 2021. UPASS has also been presented directly to various universities. A paper was been drafted as part of the publish objective and in current under review. The manuscript draft is **attached** to this report.

Outcomes highlights

The following highlights are noted for 2021:

- UPASS automatically monitors for shared assignment content online, supporting educators to be proactive, without the time burden of manual detection.
- UPASS is effective at detecting assignment content (83% effective at detecting uploads to Chegg, with 50% detected within 24 hours - 2021 UPASS validation study).
- UPASS was successfully trialled in six Australian universities with 32 assignments in 16 units of study (QUT, Swinburne, EIT, LaTrobe, ACU, RMIT)
- UPASS has a positive user satisfaction with 82% of triallists agreeing AW “helped maintain integrity” and 73% agreeing AW “helped identify matching assignments online” (Field Test Survey, 2021).

The UPASS project is an ongoing endeavour with the following highlights reported in 2022:

- Further funding was successfully secured from ACDICT to continue the project.
- UPASS has been renamed AssignmentWatch and released via a fully supported website, www.assignmentwatch.com. The system is offered free to Australian and New Zealand universities.
- AssignmentWatch was a recipient of the 2022 Tracey Bretag Prize for Academic Integrity.
- As of September 2022, 24 education institutions have registered to use AssignmentWatch.