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Prevention: The assignments written by essay-writing companies and different paid third-parties are supposedly 'original', i.e. they are likely to evade detection by software programs such as Turnitin. Assessment design approaches may limit the possibility that learners can use contract cheating companies, although a 2014 paper in Educational Studies showed that limiting the time that students have to prepare their tasks is unlikely to deter contract cheating, and that there seemed to be significant spare offer in the contract cheating market.

Detection: In July 2007 an article proposed a systematic six-stage procedure that tutors can use to detect pupils who are contract cheating.

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Moreover, the background student behaviour is different. Students who committed contract cheating are not copy-pasting someone else's texts and incorporating them into their own work; they are hiring a third party to create an entire new work for them. Given such differences, this kind of acting has its own designation: – university ghost writing, sometimes also referred to as getting "bespoke essays". As these words indicate academic ghost writing is a part of the wider category of contract cheating engagements.

Whereas contract cheating is a broader category that subsumes behaviours such as paying another man to take an exam in one's place and other forms of contracted cheating behaviours

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ICAI just organized its 27th annual conference. This was the 14th congress I've attended and one of the best I've come to in recent years. The diversity of participants in terms of geography (people from 6 continents!), institution type (commercial, NGOs, like-minded associations, High Schools to Higher Education), and positions (students and practitioners) enriched our thinking. The richness in sessions enhanced our knowledge and comprehension. And the proactive, collaborative and activist tone strengthened our belief that we can make a difference – with our joint efforts, we can make fraud the exception and integrity the standard.

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It is highly unlikely that a statement such as the narrative in above case about a source code will be considered positive. But, if you run the above narrative via a sentiment analysis tools, they report the narrative sentiment as "non-negative", which is misleading if defectiveness of the program that accompany the narrative is derived from the sentiment of that narrative. In this article we present a system which bridges these gaps. To understand overall working approach of our system consider the following (largely simplified) scenario involving professional developer support forum such as StackOverflow. Assume that a programmer has found a subtle bug in his/her code.

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In the detailed comparison phase, our approach performs a one-to-one similarity assessment of formulae using 3 similarity measures introduced by Zhang and Youssef: The coverage measure expresses the number of matching tokens in two formulae. The overlap depth measure assigns higher values to matching concepts in two formulae if the terms

occur at higher levels, i.e., closer to the top of the MathML expression tree. The concept is that higher level terms are more significant for the area of the expression. The taxonomic distance value assigns a higher weight to elements from the same set in a content dictionary. For example, two trigonometric functions, such as tan and cos, would receive a higher similarity measure than sin and log.

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Contract cheating websites often claim this form of cheating is not detectable, a claim that has been tested in two pieces of research. In a 2016 Australian study, when teachers were asked to mark a set of contract cheating essays and contract cheating was not revealed to them, no marker raised any suspicion of contract cheating. However, in a later paper when markers were specifically asked to find it, they correctly identified contract fraud 62% of the time. It has recently been suggested that existing assignment and invigilated assessment data can be thoroughly analyzed in order to detect patterns of students' progress that may be indicative of contract fraud.

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This article will focus solely on academic ghost writing: Hiring a third person to produce work intended to be submitted as if it were the students' own. These third persons can include a companies (usually via monetary contract), or peers (school-mates or friends, who typically do not involve a financial agreement).

There is some disagreement in the current literature about the two most common terms for the effect we are dealing with: ghost writing and contract cheating. Technically, contract cheating, is a wider term including completion not only of written essays, but also generally of any type of exam.

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For those who couldn't come, I wanted to share my key take-away ideas from the conference. Over the next few days, I aim to publish posts by those who attended/presented so Blog readers can learn from their knowledge and thoughts as well.

Lesson #1 – We Need More.

We need higher attention.

We need more time.

We need higher resources.

We need more urgency.

ICAI was established in 1992 in response to the fraud problem identified in Don McCabe's work (in the case you are unfamiliar, you can see an excellent summary of Don's work in Cheating in College).

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They then seeks help on StackOverflow by describing the problem in a post, p , there. In the post they has attached the relevant source code, c , from their program. Suppose this problem has also been upvoted sufficient number of times by readers, thus confirming the validity of problem described in the question. Now, if another fragment of source code, c' , which is being examined, sufficiently resembles c , then by linking one can infer that c' is highly likely to refer to the same issue as reported in the post p . The suggested tool works by

revealing discussion posts on StackOverflow such that each question, `p`, contains source code, `cp`, which enough resembles the input code, `cinput`, being examined.

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Pictures in academic documents convey much information independent of the words, which makes them useful features for assessing the semantic similarity included in such documents. To consider an ample range of image categories commonly occurring in academic papers, e.g., charts or plots, schematic representations, and photos, HyPlag includes both traditional and novel image similarity assessments. We will show a brief overview of the analysis stages HyPlag performs for candidate identification. Details on our image-based PD strategy can be found in our paper [12]. We use perceptual hashing (pHash) using a Discrete Cosine Transform (DCT) and aligning pHash values using their hamming distance as a well-established, quick and reliable way to find highly similar images of arbitrary image categories.

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Usually, at the Plagiarism across Europe and Beyond conference, it was showed how collecting analytical information at the time of writing can help in identifying papers where a student resorted to contract cheating. Although non-originality programs (like [Turnitin](#)) are unlikely to find contract cheating, there has been some success in using them to reveal the source of assignments detected on bidding sites.

Penalties: Some universities consider contract cheating to be one of the most severe forms of academic misconduct and it is punished accordingly. In 2010 the 'AMBeR Project' created a UK 'Plagiarism Tariff' in an attempt to standardise punishments for all forms of academic misconduct.

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However “contract cheating” is very frequently used to refer to university ghost writing specifically. A further complicating factor, as researchers point out the issue of payment, which is naturally assumed by the word “contract”. For our task, even though this paper in fact deals with university ghost writing, we will use term “contract cheating” in accordance with Walker and Townley and later papers of Thomas Lancaster and Bob Clarke. We also trust that “contract” can function as an agreement between people yet have non-financial character, and thus, an assignment that a friend or family member agrees to complete for a student could fall within the specification.

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And while the problem has flooded over this time and there is larger awareness around the world about the issue, there is still a small fraction of the world-wide system of educational institutions and government bodies who acknowledge the problem of fraud and the importance of integrity.

I’ve told it before and I’ll say it here once more – our leaders need to attend to this now before it reaches a critical level of corruption. They can approach to this with their words, with their minds, and with their resources.

Lesson #2 – We Are Gathered in Our Struggles.

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By examining the content (text narrative, meta-data and supplementary source code cp) of the post p we derive whether cp represents a defective code or not. Because cp enough resembles cinput, we can derive the defectiveness of cinput itself. Table-I shows the scale used for specifying/measuring code's defectiveness values. The proposed system thus helps in code reviews and identification of probably defective source code. It enlarges the confidence in a code examination by identifying similar scenarios on practical programmer support forums such as StackOverflow. Article is organized as follows: We deal with the related work in Section-I-A. Design of the suggested tool is presented in Section-II

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As an first approach to analyzing visually different images, we subsume two methods that analyze the text, such as labels, taken from the images via Optical Character Recognition (OCR). The first algorithm performs basic set-based character 3-gram matching for every character in an image. The next method performs position-aware letter matching by using single characters as the central points around which a fixed-size circular closeness region is defined. The similarity value to compare two images considers the amount of position-aware text matches normalized by the amount of characters in the larger of the two OCR texts.

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The final document noted that purchase of an essay should be penalised with the most serious punishment available, such as expulsion from the university, and that many institutions considered it to be a single form of misconduct altogether due to the apparent obvious intent linked with it. However, a 2015 research paper, also in the UK, asked university students what they severe penalties for academic misconduct could be. The responses showed that students consistently recommended lenient punishments for plagiarism, and that this effect was most mentioned for contract cheating.

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This article provides partial results of a long qualitative and quantitative research of the contract cheating market in the Czech Republic. The web pages of contract cheating services were analysed; and prices, services, and turnaround times were compared. The quality of the essay was also assessed by ordering a sample paper from various companies. Next, the number of unique approaches from the university network to the network pages of companies offering these services were compiled and examined; interviews with both ghost-writers and learners who had used their services were performed. Last but not least a quantitative examination of student involvement with these services was done using an online questionnaire.

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No matter where we are geographically settled, those of us who work and study in universities, colleges and schools around the world struggle with fraud, and we struggle to get leaders to contribute money to academic integrity, to keep our processes up-to-date, to teach our students about honesty, and to convince our teachers that their approach to teaching influences our students' approaches to studying and integrity. We must not only be united in our fights, but we must be joined in our confrontation and resolution of those efforts. And, the ICAI – with its mission of cultivating honesty in academic communities around the globe in order to promote ethical universities.

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The use of peoples' expertise for addressing software development issues is not fully new. There have been recent works which aim to assist developers by leveraging content available on professional developer support forums. Both of these are recommender tools which analyze the source code being pasted in an IDE, and generate useful queries on-the-fly to retrieve appropriate discussion threads from StackOverflow. A researcher proposes a ranking system to select the most relevant discussion questions from StackOverflow based on the current embedding (i.e. the source code being typed) in the IDE. This tool is a more primitive version of the previous one. They both use Apache Solr file indexing engine.

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For candidate identification, the hybrid approach employs 4 citation-based similarity values, which prior research proved efficient for discovering concealed academic plagiarism. Bibliographic Coupling (BC), enumerates the absolute number or fraction of shared citations while ignoring the number, position, and order of references in the text. We use BC as a basic filter. Largest Common Citation Sequence (LCCS) is the maximum number of references that match in both files in the same order, but not necessarily in a contiguous passage. We showed that LCCS achieves satisfactory results for retrieving longer parts of reused text, in which the sequence of thoughts remained unchanged.