Proceedings of

ITx 2016 CITRENZ

July 11-13, 2016
Wellington, New Zealand

Incorporating the 7th annual conference of Computing and Information Technology Research and Education New Zealand (CITRENZ2016) and the 29th Annual Conference of the National Advisory Committee on Computing Qualifications

Editors: Michael Verhaart, Emre Erturk, Aaron Steele, Scott Morton
Proceedings of the ITx 2016 (CITRENZ) 7th Annual Conference of Computing and Information Technology Education and Research in New Zealand

Incorporating the 29th Annual Conference of the National Advisory Committee on Computing Qualifications

Wellington New Zealand
11th-13th July 2016

Associate Professor Dr Michael Verhaart
Dr Emre Erturk
Dr Aaron Steele
Scott Morton

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Computing and Information Technology Research and Education New Zealand (CITRENZ) was formed as an organisation in 2010 following a review of the role of the National Advisory Committee on Computing Qualifications (NACCQ).

The National Advisory Committee on Computing Qualifications was formed in 1988.

CITRENZ provides help and support to member institutions in the development, teaching and quality assurance of courses and programmes, from certificate through degree to postgraduate levels, in the field of Computing and Information Technology.

CITRENZ also supports academic staff in several different ways, such as national workshops, research seminars, APL, moderation, the publishing of a journal, and also by organising this annual conference.

This conference is an output of the Research and Professional Development Focus Group. CITRENZ activities and a digital version of these proceedings are available from http://www.citrenz.ac.nz

The philosophy of the conference is the encouragement and support of new, emerging and established researchers in a safe environment while encouraging excellence and academic discourse.

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Dr Aaron Steele, Universal College of Learning
Scott Morton, Whitireia NZ (Posters)

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Dr Donald Joyce

Theme

The conference contains papers in the following areas under the theme “Inspirational Computing Education”:
- Computing education
- Computing practice
- Computing research

Full papers (Quality Assured)

Full papers are double blind refereed on submission by at least two independent reviewers and accepted modified or rejected. An editorial panel reviews final versions. They may be rejected or returned for modification at that point.

In keeping with its supportive mission, the conference uses a system of paper proposals which are reviewed and guidance given to content, tone and structure of papers before they are formally submitted to be double blind refereed.

Supplementary papers

Supplementary papers are editorially reviewed papers.

Poster papers

An A1 poster is displayed at the conference along with two pages in the proceedings.

Online

These conference proceedings, along with those since 2000, are available online at http://www.citrenz.ac.nz/proceedings-index/

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2016 Summary

- 20 papers were submitted, which resulted in 13 reaching full peer reviewed publication status.
- 15 Posters were editorially reviewed and accepted.

Acknowledgements

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Lynda Comer, Eastern Institute of Technology

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From NZ IITP ITx Conference website

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| Michael Verhaart      |                                                  |
2016 CITRENZ Awards

The awards were judged by CITRENZ Fellows Dr Donald Joyce and Dr Noel Bridgeman.

Student Poster - Research  
(judged on quality of poster and extended abstract)  
Winner TBA (supervised by ?)  
Commendation: TBA (supervised by ?)

Student Poster – Project/Internship  
(judged on quality of poster and extended abstract)  
Winner TBA (supervised by ?)  
Commendation: TBA (supervised by ?)

Staff Poster  
(judged on quality of poster and extended abstract)  
Winner TBA  
Commendation: TBA

Collaborative Research  
(authors at different institutions when research conducted)  
Winner TBA  
Commendation: TBA

Educational Innovation  
(evaluation of innovative educational approach)  
Winner TBA  
Commendation: TBA

Best Paper  
Winner TBA  
Commendation: TBA

Fellows of CITRENZ / NACCQ

- 2015  Dr Stephen Corich  
- 2014  Professor Dr Sam Mann  
- 2009  Garry Roberton  
- 2005  Dr Donald Joyce  
- 2000  Keith Cowan  
- 1999  Chris Goodyer  
- 1998  A/Prof Alison Clear
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Is that what they said?

An automated reference finder

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ABSTRACT

This work investigates the feasibility of using freely available online resources to create an application that can automatically discover and display original source articles that a student cites and references. A prototype application was created that used CiteSeerExtractor to extract reference details from the student work, and then used Crossref.org to return web page addresses of the original journal articles or abstracts. Initial results successfully demonstrate that the idea is effective. It is concluded that further development would result in a useful tool for assisting in the marking of student work.

Keywords: Staff Research, Automated Marking, Citation Checking, Crossref, CiteSeerExtractor, Digital Object Identifier.

1. INTRODUCTION

Assessing students’ written work is often a time consuming process and various authors have investigated methods for reducing the effort needed in undertaking this task. The advent of Massive Open Online Courses (MOOCs) has added to the desire to find more automated means for assessing written assessments (Balfoor, 2013) and a number of tools, known as Automated Essay Scoring (AES), are being used. However, the validity of automated grading has been questioned (Gregory, 2013), with ongoing debate including the discussion that students will be tempted to write for the tool and exploit the poor methods that it uses such as undue emphasis on word count.

Students are often required to support their writing by referring to peer reviewed literature and this aspect of marking can be time intensive if the claims made by students are to be checked. When a Uniform Resource Locator (URL) is given, this may take the assessor directly to the source material, but often students will cite peer reviewed articles that are not as easily accessible and when a large number of journal articles need to be found, this could be a barrier to checking if the student has used the referenced material correctly. To be clear, we are not talking about plagiarism but rather did the referenced author/article really say what the student claimed?

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2. SOFTWARE LITERATURE REVIEW

The software product EndNote (Thomson Reuters, 2016) that can be used to manage references when composing an article, has a feature for finding the full text article of a reference (Thomson Reuters, 2015) - “If you have access to PubMed LinkOut and/or OpenURL, you can point EndNote to these resources when you run the Find Full Text feature”. EndNote is not designed for assessing student work and the requirements of having access to PubMed LinkOut or an OpenURL server may limit its availability. Websites such as Google Scholar (Google, 2016) and Galileo Scholar (University System of Georgia, 2014) provide a means of searching for articles based on search terms and depending on access to the source website may lead to either an abstract or full paper article.

CiteSeerExtractor (College of Information Sciences and Technology, The Pennsylvania State University, 2013) is a website that provides “a RESTful API for extracting information from scholarly documents. It is able to extract metadata, citations, and different parts of the full text from a PDF document and return the data in a format of your choice...”.

Crossref.org (PILA INC, 2015) provides a service of locating documents based on information such as article title, authors and journal name. The service can be accessed via an API and results including URLs and the Digital Object Identifier (DOI) (International DOI Foundation, 2016) in machine readable formats (for example JSON (json.org, 2016)) are returned.

3. OBJECTIVES

This work investigates the feasibility of building a prototype application that automatically displays the source articles (or abstracts) that a student cites in their work. The application provides a Graphical User Interface (GUI) that allows the assessor to upload a student article and Figure 1 shows the sequence of events of firstly sending the article to the CiteSeerExtractor API to get a list of references/citations that the student used, followed by the use of the Crossref.org API to get a list of URLs of which at least one will hopefully refer to the correct source article. The GUI will then display the most likely match for each citation as well as giving the assessor a list of other possible URLs that could be a match.
application on a website or integration with learning platforms such as Moodle (Moodle, 2016) would enable easier access by the wider community.

The algorithms used by CiteSeerExtractor to extract citations and references from the submitted document are not always able to find all references in the document. This opens the possibility of improving on the algorithms used: recent successes of Artificial Neural Networks (ANNs) in solving pattern recognition tasks indicates that this approach may be able to improve on the current technique.

7. ACKNOWLEDGEMENTS
Thanks to Heather Wickham and Andy Fendall, Any errors in this version are the sole responsibility of the author.

8. REFERENCES

College of Information Sciences and Technology, The Pennsylvania State University. (2013). A RESTful API for extracting information from scholarly documents... Retrieved from CiteseerExtractor: http://citeseerextractor.is.psu.edu/8080/static/index.html


