HERIOT WATT UNIVERSITY
UK | DUBAI | MALAYSIA

Strictly Confidential

24 May 2023

School Discipline Committee

Sent by email to: conduct@hw.ac.uk

Dear School Discipline Committee members,

I, Dayanandan Natarajan, received an email from Dr Joe Wells on 17/05/2023 and from Student Conduct on 19/05/2023, on 'Investigation into Alleged Academic Misconduct' which I would like to disagree, provided nowhere in this dissertation I have never shown someone's work as mine nor presented someone's work without appropriate citation. This dissertation is done completely by me with the guidance of Dr Joe Wells and documented by me with my own research, my own work, reference materials from Dr Joe Wells and other authors which are appropriately cited.

Before I give my justification or explanation on this allegation, I would like to give a brief introduction about this dissertation which will help members to understand about this dissertation and the allegation. Few years ago, Dr Joe Wells have developed a product called "smlnj-script" which is an enhancement on top of SML/NJ, an SML (Standard Markup Language) implementation. He has added few features and capabilities to SML/NJ and it was maintained as a standalone implementation and not merged with SML/NJ.

My dissertation was focused on merging these "smlnj-script" capabilities into SML/NJ and work with SML implementors to get this released. With the guidance of Dr Joe Wells, I researched and analysed "smlnj-script" and "SML/NJ", identified the place of entry, made appropriate changes into SML/NJ to merge these capabilities, reached out to SML/NJ implementors and submitted my work to get it merged with SML/NJ. All along this work was monitored and reviewed by Dr Joe Wells.

"- Whether you accept or deny the allegation, and your reasons why. "

In reply to this allegation, I can confirm with full confidence I have not taken credit for someone's work nor copied someone's work as mine in this document. Before I go into details, I would like to point out the comments made by complainant, my dissertation supervisor Dr Joe Wells, in his incident report,

"

- *Most (but not all) of the copied text is not very important for explaining the project.*
- *A contributing factor might be that the student has quite a lot of difficulty with English.*
- *The student has been quite careful in other aspects of their work to be clear about the precise boundaries between what the student produced and what is the work of other people.*
- *The student's technical work is reasonably good and the student achieved a reasonable degree of success on a quite technically challenging objective. "*

My supervisor's comment above itself is evident that I have not claimed someone's work as mine, and I haven't committed a serious plagiarism.

Also, there is another comment from the complainant, "*I did not check any of the spots that Turnitin highlighted after section 2.7. There might be more copying.*". I can confirm with full confidence you may not find any plagiarism in sections beyond 2.7 and I can see the same in the Turnitin report.

I see my mistake here as the citations were incomplete or not correctly cited or referenced in the document in few instances. I will explain more in detail in the following section.

"- Explain how you believe the similarity to other source(s) has arisen. "

The incident report has pointed out four instances, which I would like to explain in detail.

For instance 1

Allegation - Sections 2.6 and 2.7 from pages 15-19, were copied from git repo "README" file.

Response – I have clearly called out in the dissertation in the previous sections prior to 2.6 and 2.7, "smlnj-script" is a work of Dr Joe Wells and the sections 2.6 and 2.7 explains about this product and features of "smlnj-script". I have explained about this product based on what Dr Joe Wells verbally explained to me and the materials he shared with me from git repo. The product is owned by Dr Joe Wells and I have only explained about what it does in this section. Unfortunately, there is no information available anywhere in internet or library about this product other than the git repo. I was totally dependent on this git repo and supervisor words. I tried to use my own words as much as possible to explain this. The biggest challenge I had here is trying to explain in my own words and rephrasing changes the technical meaning of what the product feature do, so wherever I must use the exact words I have cited them appropriately. I see my mistake here is, missing the quotations and not appropriately cited in all the sections.

For instance 2

Allegation - All three sentences in list item d subitem ii in section 2.3 ("SML/NJ") on page 11 appear to be a slightly modified copy of the first three sentences of the third paragraph of chapter 16 on page 196 of the document Introduction to Programming Languages by Jaemin Hong and Sukyoung Ryu dated 2022-03-10.

Response – As part of my research on SML/NJ and its feature "First class continuation", I tried to reproduce the same information what I read in the URL (https://hjaem.info/articles/en_18_4#:~:text=First%2Dclass%20continuations%20are%20continuations). I had the same challenge of not to change the meaning of the content while trying to reproduce in my words. The URL has been appropriately cited in the document ([17]). My mistake here is incomplete citation and not including the quotation. Also, I referred the context from the webpage article from the same author Jaemin Hong, whose book is referred by the complainant. During the time of this research, I wasn't aware of this book by the same author else I would have correctly cited the book and quoted them.

For instance 3

Allegation - The first two sentences of the student's abstract on page 3, which are repeated as the first two sentences of section 1.2 (“Aim”) on page 8, appear to be a slightly reordered copy of the first two sentences of the Wikipedia article at this URL: https://en.wikipedia.org/wiki/Standard_ML

Response –

Here is the context from URL,

> *“Standard ML (SML) is a general-purpose, modular, functional programming language with compile-time type checking and type inference. It is popular among compiler writers and programming language researchers, as well as in the development of theorem provers.”*

Here is the context from my dissertation,

> *“SML is a general-purpose, modular, functional programming language featuring type inference and compile-time type checking [1]. It is widely used in the creation of theorem provers as well as by compiler writers and researchers of programming languages [1][2].”*

I tried my best to explain what SML is in my own words, but it utterly failed because, the technical terms and words can’t be reproduced. I found it very hard to explain the terms, “general-purpose”, “modular”, “functional programming”, “type inference” and “compile-time type checking”, any alternate use of words will technically change their meaning. The technical terms must be precisely used. I ended up using the same words and appropriately cited them. This is main section and beginning of the dissertation in which I was talking about SML, and I must give accurate information about the language and not to mislead with incorrect terms or information. My mistake here is incomplete citation and not including the quotation.

For instance 4

Allegation - The first sentence of section 2.2 ("Implementations of SML") on page 11 appears to be a slightly modified copy of the first sentence from the web page at this URL: http://www.mlton.org/StandardMLImplementations

Response -

Here is the context from URL,

> *" There are a number of implementations of Standard ML, from interpreters, to byte-code compilers, to incremental compilers, to whole-program compilers."*

Here is the context from my dissertation,

> *" There are a number of implementations of Standard ML, from interpreters, to byte-code compilers, to incremental compilers, to whole-program compilers."*

As I called out in my previous instance, I must represent the same words in order not to change the meaning of it. I couldn't find a better alternate to these terms, "to byte-code compilers", "to incremental compilers" and "to whole-program compilers". These technical terms must be produced as it is. My mistake is I did an incorrect citation.

"- Explain how you have approached your work."

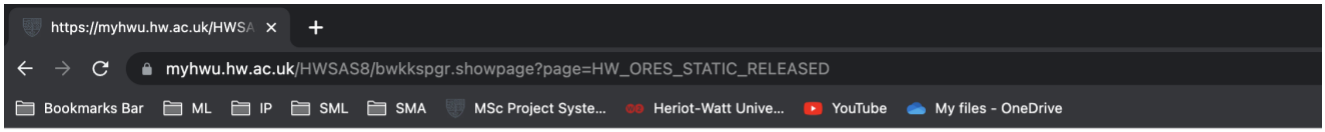
Due to the nature of this dissertation and technical challenges, I was in regular meeting with my supervisor Dr Joe Wells, at least one a week i.e., in person at his Riccarton campus office or through Microsoft Teams. In between, for any technical queries or challenges I always emailed him the details and sought advice. Once the dissertation phase started, my task started with understanding the product "smlnj-script", how it works and what it does. Dr Joe Wells has explained me on numerous occasions about "smlnj-script" and SML. Then I moved on to understand how SML/NJ works. Once I identified where to tap into, I must perform numerous trial and errors and different approaches. All along, I took advice from Dr Joe Wells since I must be very careful in coding standards, good practises and quality and tried not to get rejected by the language implementors.

I documented this dissertation based on my research on SML, SML/NJ and with the verbal explanations given to me by the supervisor. I have also included the challenges I

faced during the installation and initial set up of the product and language. I have captured and explained all the technical details of my work. I have called out specifically wherever the work of another author is explained. I have also explained the technical details to a lower level so that another student or person can carry forward this work for further enhancements.

"- You should also include any supporting documentation if you are claiming any mitigating or extenuating circumstances which you wish the Committee to consider."

All along the course right from the beginning of January 2022, I have been very serious, honest, shown my hard work and dedication to this course. I have maintained a 100% attendance for all online and in person lectures, and all labs. I have submitted all my course works on time with no plagiarism complaint. My grades and marks from the previous semesters (screenshot attached below) will explain how sincere and dedicated I was. Programming is my key area of interest and the marks I obtained in the programming courses has proved that. My interest in programming is one of the main reasons to select this dissertation.



For information on Reassessment, Graduation or Enrolment please click HERE

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Name: Mr Dayanandan Natarajan

Academic year 2022-2023
Programme: F2D1-DSC Master of Science in Data Science
Year/Stage: Year\Stage 1
Examiners Decision: You may continue to the dissertation/project, which is the next part of your programme.

Course	Title	Semester	Opportunity	Mark	Grade	Credit	Status
F21DL	Data Mining and Machine Learning	S1	1	83	A	15	Final
F21RP	Research Methods and Project Planning	S1	1	66	B	15	Final
F21SA	Statistical Modelling and Analysis	S1	1	71	A	15	Final
F21SC	Industrial Programming	S1	1	74	A	15	Final

SCQF Credits: 60

Academic year 2021-2022
Programme: F2D1-DSC Master of Science in Data Science
Year/Stage: Year\Stage 1
Examiners Decision: Continue in same year/level

Course	Title	Semester	Opportunity	Mark	Grade	Credit	Status
F21BD	Big Data Management	S2	1	71	A	15	Final
F21DE	Digital and Knowledge Economy	S2	1	61	B	15	Final
F21DP	Distributed & Parallel Technologies	S2	1	84	A	15	Final
F21DV	Data Visualisation and Analytics	S2	1	80	A	15	Final

SCQF Credits: 60

I would like to thank my supervisor Dr Joe Wells for taking time to explain and educating me on SML and how it works in UNIX environment. He was very instrumental in my learning of SML, UNIX and Linux commands, and how compiler works.

I would like to thank this committee and university for giving me the opportunity to explain my side of the allegation. I believe the committee and university will recognise all my hard work, dedication and contribution for this course and the dissertation.

Yours sincerely,

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(Note: I have travelled to India on a short break, please let me know If I must come back for any in person interview.)