RESEARCH JOURNAL — GRAPHICS

Version 1.0
BSc Computing for Games

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Introduction

In this assignment, you will produce a journal detailing your research on computer graphics. In addition to your individual journal, as a group you will create a community wiki to collect and discuss your findings.

Familiarity with the academic literature is extremely helpful for the computing professional, both to understand the seminal works that lay the foundations of the field, and to keep abreast of recent developments at the cutting edge. Games technology is a fast-moving field, and keeping up is important. However scientific papers are written in a way that is sometimes daunting to newcomers, so it is essential to practice the skill of reading and comprehending such papers. Keeping a research journal is a useful way to record your thoughts (questions, hypotheses, connections, ideas, ...) as you explore the literature.

This assignment is formed of several parts:

(A) **Write** a draft research journal, of at most 1200 words, that will:
  (i) **summarise** at least **six** papers from the academic literature on computer graphics;
  (ii) **synthesise** what you have read into a cohesive whole.
(B) **Write** the final version of your research journal, of at most 1200 words, which will:
  (i) **revise** any issues raised by your tutor and/or your peers.
(C) **Edit** the community wiki to:
  (i) **share** your findings on what you have read;
  (ii) **debate** your findings with your peers.
(D) **Discuss** your research journal with your tutor in the viva session in class.

"There are two ways of constructing a software design: One way is to make it so simple that there are obviously no deficiencies and the other way is to make it so complicated that there are no obvious deficiencies."

— C.A.R. Hoare

"The computing scientist's main challenge is not to get confused by the complexities of (their) own making."

— E. W. Dijkstra

"Controlling complexity is the essence of computer programming."

— Brian Kernighan

Assignment Setup

This assignment is an **academic writing task** and **wiki task**. Fork the GitHub repository at the following URL:

`https://github.com/Falmouth-Games-Academy/comp220-journal`

Use the existing directory structure and, as required, extend this structure with sub-directories.

Modify the `.gitignore` to the defaults for **TeX**. Please, also ensure that you add editor-specific files and folders to `.gitignore`.

ACM SIGGRAPH is the premier conference on computer graphics, with contributions to it highly respected by the games industry.

Part A

Part A consists of **multiple formative submissions**. This work is **individual** and will be assessed on a **threshold** basis.

To complete Part A, **select** and **read at least six** papers from the academic

literature on computer graphics. For each paper you read, write an entry in your research journal. It is recommended that you write your journal entry in the `readme.md` file within your forked repository, but you may use LaTeX if you prefer. Commit your work to your GitHub repository to be signed off during personal tutor meetings, at least once every three weeks during semester 1.

You will receive **immediate informal feedback**.

Part B

Part B is a **single summative submission**. This work is **individual** and will be assessed on a **criterion-referenced** basis using the criteria listed in the marking rubric at the end of this document.

To complete Part B, revise your report from Part A to take into account any feedback you have received so far.

Compress your `readme.md` file, along with any required images or other external files, into a `.zip` file and upload it to LearningSpace. Alternatively, if you have used LaTeX, upload a `.pdf` file of your journal to LearningSpace. Note that LearningSpace will only accept a single `.zip` or `.pdf` file.

You will receive **formal feedback** three weeks after the final deadline.

Part C

Part C consists of **multiple formative submissions**. This work is **individual** but with a **collaborative** component, and will be assessed on a **criterion-referenced** basis. The criterion used to assess this part relates to the quantity and quality of your contributions.

To complete Part C, contribute to the wiki at the following URL:

`https://github.com/Falmouth-Games-Academy/comp220-journal/wiki`

Please ensure that you are editing the wiki for the `Falmouth-Games-Academy` repository, and **not** the wiki for your fork of the repository.

During your personal tutor meetings, make your tutor aware of your contributions to the wiki.

You will receive **immediate informal feedback** as well as **ongoing peer feedback**.

Part D

Part D consists of a **single formative submission**. This work is **individual** and will be assessed on a **threshold** basis.

To complete Part D, bring the final version of your research journal to the viva session in class. Be ready to discuss your work with your tutor.

You will receive **immediate informal feedback**.

Additional Guidance

To make the most efficient use of your time, focus your reading on papers that are relevant to the techniques you have chosen to implement in your portfolio task for this module. That said, it is also beneficial to read more widely around the subject area to better understand the context within which works are situated. As much as possible you should focus your reading on peer-reviewed scholarly sources reporting primary research: articles in scientific workshops,

conferences, journals, and some books or book chapters. Other sources tend to be less rigorous, and should be used only for background information or in cases where their use can be convincingly justified.

A common pitfall is to focus too much on summarising the content of the papers you have read. For higher marks you need to demonstrate **insight** into what you have read: forming inferences and analyses beyond what is written in the paper. Some questions you might ask yourself are: Why is the paper significant and/or influential? Why did the researchers choose the approach that they did? Is there anything counterintuitive or surprising in the paper? Do you disagree with any of the assumptions or claims it makes? Does the paper suggest any further research questions?

A related pitfall is to structure the journal as a sequence of disconnected entries. Instead aim to **synthesise** multiple papers into a cohesive whole, drawing connections between works by different authors. Forming a holistic picture of a field is much more valuable than simply understanding individual works.

The wiki is primarily intended to become a useful shared resource for the cohort. As such, students are expected to direct themselves and their peers in populating, structuring and editing the wiki. If appropriate, you may copy and paste material from your individual journal into the wiki. However note that a wiki is not a piece of academic writing and thus will tend to have a less formal tone than you should be aiming for in your journal. Edits may be required to ensure a consistent tone for the wiki.

You can, and indeed should, take inspiration from others' wiki contributions when working on your own journal. However you **must not** copy verbatim material written by others; doing so will be considered academic misconduct.

Most researchers write scientific papers for the intended audience of their fellow researchers. Thus some papers can seem impenetrable to the novice reader. Don't lose heart! Discuss the paper with your peers. Follow up the papers it cites to find alternative explanations. If all else fails, continue reading the paper — often a difficult paragraph is clarified by something which appears later.

FAQ

- **What is the deadline for this assignment?**
  Falmouth University policy states that deadlines must only be specified on the MyFalmouth system.
- **What should I do to seek help?**
  You can email your tutor for informal clarifications. For informal feedback, make a pull request on GitHub.
- **Is this a mistake?**
  If you have discovered an issue with the brief itself, the source files are available at:
  `https://github.com/Falmouth-Games-Academy/bsc-assignment-briefs`.
  Please make a pull request and comment accordingly.

Marking Rubric

Criterion	Weight	Refer for Resubmission	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency	Professional Proficiency
Basic Competency Threshold	40%	At least one part is missing or is unsatisfactory.	Formative submissions for Part A have been signed off at least once every three weeks. The student participated in the viva, with enough work available to hold a meaningful discussion. Sources have been cited in an appropriate manner, without any obvious errors. No breaches of academic integrity.				
Breadth of reading	5%	Fewer than the six suggested articles are referenced.	All six of the suggested articles are referenced.	All six of the suggested articles are referenced. A further six sources are also referenced.	All six of the suggested articles are referenced. A further 12 scholarly articles are also referenced.	All six of the suggested articles are referenced. A further 18 scholarly articles are also referenced.	All six of the suggested articles are referenced. A further 24 scholarly articles are also referenced.
Depth of insight	15%	Little or no insight is demonstrated. Papers are merely paraphrased or summarised in the student's own words.	Some insight is demonstrated. Attempts are made at discussion beyond summary.	Much insight is demonstrated. Discussion is inferential in nature.	Considerable insight is demonstrated. Discussion is analytical in nature.	Significant insight is demonstrated. Discussion is analytical and evaluative in nature.	Extensive insight is demonstrated. Discussion is highly analytical and evaluative in nature.
Specificity, verifiability & accuracy of claims	5%	Few claims have a clear source of evidence. Significant errors and/or misinterpretations.	Some claims have a clear source of evidence. Many errors and/or misinterpretations.	Many claims have a clear source of evidence. Some errors and/or misinterpretations.	Most claims have a clear source of evidence. Few errors and/or misinterpretations.	All claims have a clear source of evidence. Almost no errors and/or misinterpretations.	All claims have a clear source of evidence. No detectable errors and/or misinterpretations.
Synthesis	15%	No connections are made between different sources.	Superficial connections are made between different sources.	Basic connections are made between different sources.	Reasonable connections are made between different sources. Connections go beyond mere description.	Strong connections are made between different sources. Connections are analytical in nature.	Strong connections are made between different sources. Connections are analytical and evaluative in nature.
Community engagement	10%	Few or no contributions have been made to the wiki.	Some contributions have been made to the wiki. Contributions are non-trivial. The student has made some attempt to engage in community discourse.	Many contributions have been made to the wiki. Contributions are well-reasoned. The student has engaged in the community discourse.	A considerable number of contributions have been made to the wiki. Contributions are well-reasoned. The student has actively engaged in the community discourse.	A significant number of contributions have been made to the wiki. Contributions are well-reasoned and academically sound. The student has participated in steering the community discourse.	An extensive number of contributions have been made to the wiki. Contributions are well-reasoned and academically sound. The student has played a key role in driving the community discourse.
Appropriateness of spelling & grammar	5%	Substantial spelling and/or grammar errors.	Many spelling and/or grammar errors.	Some spelling and/or grammar errors.	Few spelling and/or grammar errors.	Almost no spelling and/or grammar errors.	No spelling or grammar errors.
Appropriateness of journal structure	5%	There is no structure, or the structure is unclear.	There is little structure.	There is some structure. A few sentences and paragraphs are well constructed.	There is much structure. Some sentences and paragraphs are well constructed.	There is much structure, highlighting the key themes. Most sentences and paragraphs are well constructed.	There is much structure, highlighting the key themes. All sentences and paragraphs are well constructed.