Psychology Honours: Research Thesis Assessment Report

Student name:	Angus Leung
Project Title:	Integrated Information Φ in Flies is Reduced Under Anesthesia

Comments: This section is provided to the student. Use additional page if required.

Please note the weighting of marks for each section

1. Abstract	**5%**
The thesis abstract was well-written and it succinctly described the contents of the thesis.	
2. Literature Review and Statement of Hypotheses	30%
The literature was clearly and succinctly described, and showed a clear understanding of the topic at hand. This section was well structured, with a clear and logical flow from the introduction to the aims and hypotheses. The main research questions: using the newest version of IIT in the fly brain and using Φ^* as a practical alternative, were clearly described and well-argued as to why their answers should be pursued. Two minor points that could have improved this section: (1) There could have been short description of other animal models that have been used evaluated with Φ. (2) In the text, there is a mention of the "Latest version of IIT", there could have been a short summary of the different versions of IIT. Admittedly, this could have been a distraction for the thesis but it could have been a table in an appendix. In summary, the literature review, introduction and statement of hypotheses were a delight to read. The fairly complicated, and heavily mathematical, theory for IIT was made palatable for the examiners well done!	
3. Method: Research Approach and Study Design	**10%**
The experimental and analysis methods were clearly described and easy to follow. To improve this further three (very) minor points could have been addressed: (1) Why were the LFP's downsampled to 1khz? (2) Why were the three lags chosen? It seems that both of these were decided upon due to computational demands. One last point, the units of time were missing in the figures (ms, s?).	

4. Results	15%
The results were well-structured and very well written. The logic of this section made the evaluation of the hypotheses easy to remember and easy to address. The figures were clear. A hallmark of an excellent a thesis/paper is that one could read the abstract, go straight to the figures and understand what the paper is generally about, this was achieved here, well done!	
5. Discussion and Conclusion	**20%**
The discussion and conclusion sections were very well written. These sections appropriately addressed the research questions and hypotheses, showing a clear and new result for the field. It would not take much more to turn the work in this thesis into a journal publication. One point "However, there is no literature demonstrating that frequency domain analyses and time analyses can be directly linked together at some time scale" Is a little unclear and/or not necessarily true as time and frequency are intimately related. Calculating Φ up to 16ms is most likely equivalent to using a high-pass filter above 62Hz thus missing out on changes at low frequencies. The results here are thus compatible with Cohen et al 2017, by showing that the lack of reduced feedback is not on this shorter time scale. The work could be extended to look at longer time scales.	
6. Critical Thinking/Synthesis	**10%**
The thesis showed clear critical thinking and was well argued throughout.	
7. Referencing	**5%**
The references: Van Swinderen 2005, Oizumi 2014, Mayner 2016, Mitra 2007,Bates 2015, Alkire 2008 Had minor errors (either journal name or publishing house was inconsistent, or some part missing). Other than that the list was extensive and well documented.	
8. Presentation and Organisation	**5%**
The presentation and organization was clear. Well done	
9. Other Comments	**0%**
Total numerical mark	**/100**

FOR INFORMATION : Indicative scores for Monash grades

H1 80+	H2A 70-79	H2B 60-69	H3 50-59	Fail <49

Name of examiner: ***Dr Kevin Aquino***

Signature:  Date: **21/11/2017**

Submit examiners reports to kelly.atkins@monash.edu by November 6th, 2017