

## Thesis Marking Rubric

**Thesis title: Using Pareidolia to explore the fundamental features of face perception**

| <b>Criterion 1</b>   | <b>Abstract and title</b>   |
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| <p>Clear and concise title and abstract</p> <p>Abstract includes description of study purpose, methods, findings and conclusion</p> <p>Abstract is succinct yet informative</p> <p>Title succinctly provides key information regarding study</p>   | <p>The title was fine. The abstract was generally well done with all the necessary elements included and generally clear and concise.</p> <p>Perhaps there could have been more method information like sample size and basic design.</p>   |
| <b>Criterion 2</b>   | <b>Introduction</b>   |
| <p>Justification of research topic and clear rationale based on relevant evidence, theory and/or literature</p> <p>Critical evaluation and synthesis of background information, literature, and theory</p> <p>Study hypotheses/research questions clearly stated and with justification from literature/background</p> | <p>Generally, the introduction was well done. Basic background information was provided and evidence presented to make the case for the research. However, often the evidence was general and vaguely stated. For instance, pareidolia itself was not really explained or described in terms of empirical findings. Plenty of references provided but not enough careful description and evaluation of key findings. Too much use of generalised phrases such as “numerous studies”, “understanding the mechanisms”, “most intensively studied”, “growing body of research”, etc</p> <p>Expression in the opening paragraph could have been clearer. For example, the neural basis for pareidolia was variously described as a template, device, theory, system, and network. The “face inversion effect” was not really explained. Sometimes the relevance of the information provided to the current study was not clear and there was not much critical evaluation. Some conflicting findings were described that seemed relevant to the study but these were not explored or explained well, simply stating, “Despite these inconsistencies, the general consensus is . . .”</p> <p>The reason for conducting the research did not come through strongly. What is the deeper issue to be resolved?</p> <p>The Figures were helpful. The hypotheses were generally clear and supported by the previous review.</p> |
| <b>Criterion 3</b>   | <b>Method</b>   |
| <p>Appropriateness of methodology for addressing research aims/hypotheses/questions.</p>   | <p>The methodology was appropriate for addressing the research questions and was generally well described.</p> <p>The justification for the sample size was well covered but where the “medium to large effect” estimate came</p>   |

## Thesis Marking Rubric

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| <p>Comprehensive description of methods, including specifics of experimental stimuli/measures/apparatus etc (as appropriate to study), as well as clear details of procedure and evidence of understanding of methods and rationale for choice of method</p> <p>An appropriate justification for sample size has been provided. If adequate sample size is not reached procedure taken to improve it are explained</p> <p>Sample is suitable for answering study aims/questions</p> <p>Measurement of variables is valid, measures are appropriately justified (where applicable), and psychometrics (including internal consistency) of measures used are reported appropriately</p> | <p>from was unclear. Sample size and composition were fine.</p> <p>Great to see the pilot work on the face-likeness ratings.</p> <p>The Procedure was well described – good to see ethics code included. Last paragraph p 20 on data analysis not so clear. Should be “p-values &lt; .05”. Alpha values are what you set as the boundary for significance.</p>  |
| <b>Criterion 4</b>  | <b>Results</b>  |
| <p>Appropriate choice of analytic strategy for answering research questions/hypotheses</p> <p>Clear, well-structured and accurate presentation of results</p> <p>Data analyses are conducted competently and appropriately for the data</p> <p>Effect sizes and confidence intervals (CI) are reported appropriately</p>  | <p>Generally, the Results section was well done. Appropriate data analyses, generally clear and accurate, with good detail. Hypotheses were addressed directly.</p> <p>Some minor things: the description “linear mixed model” is a little vague straight-up, more information is provided later, but explain more when first introduced. The interaction term in Table 3 gives - 0.33, but this is not within the CI, a “0” missing perhaps? Some of the findings in Table 3 were repeated in the paragraphs beneath the table. The graph of the significant interaction could have been clearer.</p>  |
| <b>Criterion 5</b>  | <b>Discussion</b>   |
| <p>Ability to relate results to previous research, examine/explain differences between present findings (student's thesis) and previous findings, discuss their significance, and suggest possibilities for further research</p> <p>Synthesis of findings relating to the existing literature</p> <p>Discussion provides an exploration of the meaning of findings and relevant theoretical/practical issues</p> <p>Limitations of the research and the implications of these limitations well considered</p>   | <p>The Discussion started by restating the main aim (good) and the hypotheses. Perhaps each hypothesis could have been taken in turn and explained and discussed.</p> <p>The second paragraph addressed a key finding that the High SF images were selected and rated as more face-like compared to Low SF images. This contrasted with what was predicted. Here was a good opportunity to explain and discuss findings, refer to other literature, and consider theoretical implications. However, this was not done. There were too many generalised statements.</p> <p>There were some better comparisons with the literature in regard to the interaction effect.</p> |

### Thesis Marking Rubric

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| <p>The student suggests future research directions that are logical and well-targeted</p> <p>Conclusions drawn in the discussion are reasonable, accurate and follow from the results obtained</p>  | <p>There were some thoughtful comments regarding the differences in visual content of the human face and illusory face images. And also, thoughtful comments in regard to design differences in this study compared to previous studies.</p> <p>Limitations were well covered and the conclusion was fine. Future research was more in regard to methodological improvements rather than theoretical advancement or in terms of what questions remain to be answered in this field.</p>  |
| <b>Criterion 6</b>  | <b>APA (7<sup>th</sup> ed), clarity &amp; referencing</b>  |
| <p>Thesis adheres to APA formatting and is well written with logical flow.</p> <p>Consistent and correct formatting throughout thesis</p> <p>References and citations are done appropriately</p> <p>The writing is clear and can be read and understood with minimal effort</p> | <p>The thesis was well presented with good APA style and formatting. The writing was generally clear but had to be reread occasionally to work out what was meant.</p> <p>References in text and the Reference list were well done. Some minor things however: alphabetical order of references in brackets missed once, some missing commas in refs, "&amp;" in text, "inherent turning properties" was confusing, "illicit" instead of "elicit". Avoid expressions such as "It is hoped".</p> <p>Headings, figures, and tables were well used.</p> |
| <b>FINAL MARK (/100)</b>  | <b>77%</b>   |

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| Criterion 1  | Abstract and title  |
|--|---|
| <p>Clear and concise title and abstract</p> <p>Abstract includes description of study purpose, methods, findings and conclusion</p> <p>Abstract is succinct yet informative</p> <p>Title succinctly provides key information regarding study</p>   | <p>The abstract was sound. Whilst detail on the sample would be included for a journal article, I appreciate it is not needed as per these marking criteria, so this is of no concern.</p>  |
| Criterion 2  | Introduction  |
| <p>Justification of research topic and clear rationale based on relevant evidence, theory and/or literature</p> <p>Critical evaluation and synthesis of background information, literature, and theory</p> <p>Study hypotheses/research questions clearly stated and with justification from literature/background</p> | <p>The detail in the introduction was rich and thorough. I was initially concerned that the construct understudy was somewhat abstract in focusing merely on registering faces. But the detail on the role of expressions in presenting emotional states made this research more grounded in reality.</p> <p>The introduction explained the concepts well, and was engaging with the looping and synthesis of ideas throughout.</p> <p>Ultimately, the hypotheses could have been perhaps structured more clearly. I had the following concerns. (a) Hypotheses one (forced choice) and two (rating task) pertained to the same essential research question, so could have perhaps been a single hypothesis. They would have been fine to be separate hypotheses if this were justified. However, it was not. I noticed H3, by contrast, did combine the forced choice and rating task. (b) H3 presented one portion of the interaction presented in H4. While this was fine, I made me wonder why the other portion of the interaction of H4 was not also presented as its own hypothesis. (c) H4 was of an interaction, so should have ideally been identified as such.</p> |
| Criterion 3  | Method  |
| <p>Appropriateness of methodology for addressing research aims/hypotheses/questions.</p> <p>Comprehensive description of methods, including specifics of experimental stimuli/measures/apparatus etc (as appropriate to study), as well as clear details of procedure and</p>  | <p>The stimuli were well grounded in the previous literature. The design was clearly explained, complete with the aid of Figure 6.</p> <p>The sample and sample size were sound, as were the measures used.</p> <p>The rigour of the experimental design pertained first and foremost to the comparison</p>   |

## Thesis Marking Rubric

| <p>evidence of understanding of methods and rationale for choice of method</p> <p>An appropriate justification for sample size has been provided. If adequate sample size is not reached procedure taken to improve it are explained</p> <p>Sample is suitable for answering study aims/questions</p> <p>Measurement of variables is valid, measures are appropriately justified (where applicable), and psychometrics (including internal consistency) of measures used are reported appropriately</p> | <p>of low and high spatial frequencies, since these were contrasted directly. I appreciate that linear mixed models were used to make other comparisons possible, for instance, on the scales of emotion or face likeness. Further, the linear mixed model was justified as handling these comparisons. That said, I had the below concern.</p> <p>For H2, I wondered how the low and high spatial frequencies could be compared given that the likeness rating was only provided for the image (high or low frequency) that was selected. Had this rating been given for both, then the high and low frequency conditions could be compared. I am guessing that in some trials the low frequency was selected, while in other trials the high-frequency was selected. Assuming the number in each group was sufficient, then these could be compared. However, ultimately different trials are being contrasted against each other which amounts to apples compared against oranges. Apples and apples would have been compared had the rating of "face likeness" been reported for both the high and low frequency images of each trial.</p> <p>I do appreciate that this whole matter was resolved by using linear mixed models. That said, there was no explanation of how the linear mixed models resolve this. It was merely presented as being fixed by the black box of the linear mixed model wizardry. Whilst complex to explain, further justification to this end would have been welcomed. I appreciate this was difficult given the limited space, so no marks are deducted with regard to the observations here.</p> |
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| <b>Criterion 4</b>  | <b>Results</b>  |
| <p>Appropriate choice of analytic strategy for answering research questions/hypotheses</p> <p>Clear, well-structured and accurate presentation of results</p> <p>Data analyses are conducted competently and appropriately for the data</p> <p>Effect sizes and confidence intervals (CI) are reported appropriately</p>  | <p>At the bottom of page 20 and top of page 21 the author mentions further testing H3 (with a t test). It mentions comparing angry faces for high and low spatial frequency, which is different to what hypothesis three compares, which is angry faces against happy faces when both are high frequencies. Adding to this error, the need for this additional t-test was not ever justified.</p> <p>The handling of the nonnormality was fine. Other assumptions, such as homogeneity of variance, should have been tested.</p> <p>On page 24, the main effect of emotion was reported. This did not test hypothesis three since this main effect averages across low and</p>  |

## Thesis Marking Rubric

|  | <p>high spatial frequency for happy faces, and also averages across low and high spatial frequency for angry faces. By contrast, hypothesis three, as presented at least, was supposed to contrast happy and sad for only high spatial frequency. Accordingly, the claim on page 24 that this particular main effect only partially supports H3 cannot be made. This main affect in no way assesses H3. This means that, ultimately, H3 was not assessed with the linear mixed models, despite the data analysis claiming it would do this. On the contrary, H3 was directly assessed with the unjustified t-test.</p> <p>Relatedly, the following text on page 25 reported a result that was not hypothesised: “these results suggest that overall, happy faces are rated as more face like”.</p> <p>H4 was correctly interpreted as being partially supported by the interaction. The graph of this was welcomed.</p>   |
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| Criterion 5  | Discussion  |
| <p>Ability to relate results to previous research, examine/explain differences between present findings (student’s thesis) and previous findings, discuss their significance, and suggest possibilities for further research</p> <p>Synthesis of findings relating to the existing literature</p> <p>Discussion provides an exploration of the meaning of findings and relevant theoretical/practical issues</p> <p>Limitations of the research and the implications of these limitations well considered</p> <p>The student suggests future research directions that are logical and well-targeted</p> <p>Conclusions drawn in the discussion are reasonable, accurate and follow from the results obtained</p> | <p>With regard to the third paragraph of the discussion, ultimately, greater clarity was needed in the first four sentences. The overall flow of ideas throughout this paragraph was not ideal. The paragraph ended by reporting the interaction and mentioning it partially supported H4, but then didn’t discuss this further. The discussion should elaborate on the findings. In the following paragraph a different topic was discussed. Ultimately, this flow of ideas was weak.</p> <p>On page 28 there is a paragraph commencing with the sentence “the tendency for high spatial.....”. This particular sentence illustrates a lack of clarity in the writing. What this sentence failed to clarify, was that this sentence was comparing against research of human faces that found the reverse effect. That said, the balance of the paragraph gave rich discussion of why the current findings might diverge from those of the previous literature.</p> <p>The discussion in the subsequent paragraph was engaging.</p> <p>Whilst the discussion did pose interesting points on why the converse results occurred, ultimately it was relatively short and had little detail on avenues for future research.</p> |

### Thesis Marking Rubric

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| <b>Criterion 6</b>  | <b>APA (7<sup>th</sup> ed), clarity &amp; referencing</b>  |
| <p>Thesis adheres to APA formatting and is well written with logical flow.</p> <p>Consistent and correct formatting throughout thesis</p> <p>References and citations are done appropriately</p> <p>The writing is clear and can be read and understood with minimal effort</p> | <p>The writing was strong but was not extraordinary. For instance, clarity could have been enhanced by breaking up compound nouns (e.g. "high spatial frequency happy faces") of H3. Additionally, excessive use of normalisations made the writing slightly cumbersome.</p> <p>APA style was adhered to throughout.</p> |
| <b>FINAL MARK (/100)</b>  | <b>77%</b>   |

### Thesis Marking Rubric

| Criterion                   | HD<br>(85-100%)   | D<br>(75-84%)  | C<br>(65-74%)   | P<br>(50-64%)  | Fail<br>(1-49%)   |
|-----------------------------|---|--|---|--|---|
| <b>Abstract &amp; Title</b> | Excellent: succinct and informative. Well written and clear summary of the study, including sufficient information to evaluate the content<br>Title captures fundamentals aspects of study  | Very good: Covers the main findings but may present like a list of contents than a high level succinct informative summary of the study.<br>Title provides good overview of study  | Good but either has minor omissions or /provides too much detail for an abstract.<br>Title is suitable but may lack some details  | Satisfactory but lacks focus or has omissions. Title has some omissions of important aspects of study  | Unsatisfactory, poor overview of study, title not suitable  |
| <b>Introduction</b>         | <ul style="list-style-type: none"> <li>• Excellent critical evaluation of the theory and background literature, with a high level of conceptual sophistication.</li> <li>• Excellent positioning of topic within the field.</li> <li>• Hypotheses/research questions very well specified, extremely well argued and clear, with a high level of integration with the literature reviewed</li> <li>• Excellent rationale and synthesis.</li> </ul> | <ul style="list-style-type: none"> <li>• Very good introduction, clear and well-focused argument. Critical analysis is present with a good level of conceptual sophistication</li> <li>• Good positioning of topic within the field.</li> <li>• Hypotheses/research question well specified, well-argued and clear, with a good level of integration with literature reviewed</li> <li>• Very good rationale and evidence of synthesis.</li> </ul> | <ul style="list-style-type: none"> <li>• Good introduction with a clear argument. Some critical evaluation, with only a moderate level of conceptual sophistication</li> <li>• Sound attempt at positioning the topic with the field.</li> <li>• Hypotheses/research question are clearly stated but display only superficial integration with the literature reviewed.</li> <li>• Rationale provided but only superficial level of synthesis.</li> </ul> | <ul style="list-style-type: none"> <li>• Satisfactory introduction with a somewhat superficial argument with little critical evaluation.</li> <li>• Attempt made to position topic within the field.</li> <li>• Hypotheses/research question stated but little evidence of integration with the literature reviewed</li> <li>• Weak rationale and little synthesis.</li> </ul> | <ul style="list-style-type: none"> <li>• Unsatisfactory introduction with a very poor argument</li> <li>• Little attempt made to position topic within the field</li> <li>• Some hypotheses/research questions stated but do not follow from the literature reviewed</li> <li>• Poor or no rationale</li> </ul> |



## Thesis Marking Rubric

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| <b>Method</b>  | <ul style="list-style-type: none"> <li>• Excellent and comprehensive description of methods</li> <li>• Description of methods, as well as measures/apparatus/stimuli and procedure are very clearly presented and would allow replicability</li> <li>• Sophisticated understanding of methods and rationale for choice of method evident</li> <li>• Variables operationalized in highly appropriate way and selection of measures/operationalized very well justified</li> <li>• Sample is very suitable for proposed study</li> </ul> | <ul style="list-style-type: none"> <li>• Very good clear and comprehensive description of methods</li> <li>• Good understanding of methods and rationale for choice of method evident.</li> <li>• Description of methods, as well as measures/apparatus/stimuli and procedure are very clearly presented and would allow replicability</li> <li>• Variables operationalized in appropriate way and selection of measures/operationalized justified</li> <li>• Sample is suitable for proposed study</li> </ul> | <ul style="list-style-type: none"> <li>• Good clear description of methods, maybe some omissions of detail.</li> <li>• Basic understanding of methods and rationale for choice of method evident.</li> <li>• Description of methods, as well as measures/apparatus/stimuli and procedure are very clearly presented and would allow replicability</li> <li>• Variables operationalized in appropriately and some justification given</li> <li>• Sample is acceptable for proposed study</li> </ul> | <ul style="list-style-type: none"> <li>• Satisfactory description of methods, but with lack of clarity or omissions of detail.</li> <li>• Little understanding of methods and rationale for choice of method evident.</li> <li>• Description of methods, as well as measures/apparatus/stimuli and procedure are very clearly presented and would allow replicability</li> <li>• Variables operationalized in highly appropriate way</li> <li>• Selected sample has some limitations</li> </ul> | <ul style="list-style-type: none"> <li>• Unsatisfactory description of methods, lacks clarity and has major omissions No understanding of methods and rationale for choice of method evident.</li> <li>• Lacks sufficient clarity or detail to allow method to be suitably understood or study to be replicated</li> </ul>                                    |
| <b>Results</b> | <ul style="list-style-type: none"> <li>• Excellent presentation of reported results, clearly structured and very well written.</li> <li>• Data are clearly described</li> <li>• Data analyses are highly suited to answering research question</li> <li>• Analyses are conducted very competently and appropriate for the data</li> <li>• All aspects of results, including relevant effect sizes/CIs are very clearly and correctly reported.</li> </ul>  | <ul style="list-style-type: none"> <li>• Very good presentation of reported results, a good structure and well written.</li> <li>• Data are appropriately described</li> <li>• Data analyses are suitable for answering research question</li> <li>• Analyses are competent and appropriate for the data and clearly and correctly reported, there may be small omissions.</li> <li>• Results, including relevant effect sizes/CIs are accurately reported</li> </ul>  | <ul style="list-style-type: none"> <li>• Good presentation of results may lack clarity in structure or wording.</li> <li>• Data are described</li> <li>• Data analyses are appropriate for the data but may be less suitable, or some omissions or errors</li> <li>• Results are reported correctly and with clarity, but with some small errors</li> </ul>  | <ul style="list-style-type: none"> <li>• Satisfactory presentation of results but lacks clarity in structure and wording.</li> <li>• Data are poorly described</li> <li>• Data analyses are less well suited to answering research question</li> <li>• Major omissions or errors in the reporting of results</li> </ul>   | <ul style="list-style-type: none"> <li>• Unsatisfactory presentation of results lacking clarity.</li> <li>• Inappropriate choice of analysis, not linked to hypothesis/ research question</li> <li>• Data poorly described</li> <li>• Analyses are inappropriate for the data and there are major omissions or errors in the reporting of results.</li> </ul> |

## Thesis Marking Rubric

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| <b>Discussion</b>   | <ul style="list-style-type: none"> <li>• Excellent and thorough understanding of the findings and their relationship to the hypotheses/research question</li> <li>• Excellent synthesis of findings with the existing literature.</li> <li>• Excellent and well considered theoretical/practical implications of the research.</li> <li>• Limitations of the research and the implications of these limitations well considered.</li> <li>• Appropriate and well considered suggestion for future research that are highly logical</li> <li>• All elements of discussion are present and evidence of a high level of conceptual sophistication.</li> </ul> | <ul style="list-style-type: none"> <li>• Very good understanding of the findings and their relationship to the hypotheses/research question</li> <li>• Very good synthesis of findings with the existing literature.</li> <li>• Well considered theoretical and practical implications of the research.</li> <li>• Limitations of the research and the implications of these limitations are considered.</li> <li>• Appropriate and logical suggestions for future research</li> <li>• All elements of discussion are present and evidence of good level of conceptual sophistication.</li> </ul> | <ul style="list-style-type: none"> <li>• Good understanding of the findings and their relationship to the hypotheses/research question</li> <li>• Good synthesis of findings with the existing literature.</li> <li>• Consideration made of the theoretical and practical implications of the research.</li> <li>• Limitations of the research and the implications of these limitations are mentioned.</li> <li>• Suggestions for future research made which may not emerge clearly from the research and or literature</li> <li>• Most elements of discussion are present and evidence moderate level of conceptual sophistication</li> </ul> | <ul style="list-style-type: none"> <li>• Satisfactory understanding of the findings and their relationship to the hypotheses/research question</li> <li>• Some synthesis of findings with the existing literature.</li> <li>• Some consideration made of the theoretical and practical implications of the research.</li> <li>• Limitations of the research are mentioned but not well thought out.</li> <li>• Some suggestions for future research but are not clearly linked to the research and or literature</li> <li>• Most elements of discussion are present but with little conceptual sophistication</li> </ul> | <ul style="list-style-type: none"> <li>• Unsatisfactory discussion, shows little understanding of the results or the implications of the results. Interpretation lacking.</li> </ul> |
| <b>APA (7<sup>th</sup> ed), clarity &amp; referencing</b> | <ul style="list-style-type: none"> <li>• Excellent APA used consistently and correctly throughout thesis.</li> <li>• Excellent clarity and flow to thesis with well-developed linking of ideas throughout</li> </ul>   | <ul style="list-style-type: none"> <li>• Very good, with only a few minor errors</li> <li>• Very good clarity and flow to thesis with ideas coherently linked throughout</li> </ul>   | <ul style="list-style-type: none"> <li>• Good but with some consistent errors throughout thesis</li> <li>• Good level of clarity in writing, with some less strong areas, and some linking of ideas throughout</li> </ul>   | <ul style="list-style-type: none"> <li>• Satisfactory but somewhat careless with a large number of errors</li> <li>• Some clarity to writing, with issues. Ideas not always well linked or connected</li> </ul>  | <ul style="list-style-type: none"> <li>• Inadequate</li> <li>• Lack of clarity, difficult to follow ideas</li> </ul>   |