**Software paper for submission to MEDSCI 736 University of Auckland**

To complete this template, please replace the blue text with your own. The paper has three main sections: (1) Overview; (2) Availability; (3) Reuse potential.

Please submit the completed paper to: f.kubke@auckland.ac.nz

**(1) Overview**

Title

The title of the software paper should focus on the software, e.g. “Text mining software from the X project”. The title should be factual, relating to the functionality of the software and the area it relates to rather than making claims about the software, e.g. “Easy-to-use”.

Paper Authors

1. *Birrell, N. W.*

Paper Author Roles and Affiliations

1. Developer, University of Auckland

2. Second author role and affiliation *etc.*

Abstract

A short (ca. 100 word) summary of the software being described: what problem the software addresses, how it was implemented and architected, where it is stored, and its reuse potential.

Keywords

Geometric Morphometrics; Statistical Analysis; MANOVA; Wing Venation; Taxonomy*.*

Keywords should make it easy to identify who and what the software will be useful for.

Introduction

Traditional morphometrics focuses on the statistical analysis of variables, usually corresponding to lengths and widths of anotomical structures (1). The drawback of using these measurements is that the overall form of a structure is not used in the analysis. Geometric morphometrics overcomes this by removing linear measurements, instead focussing on shapes formed between landmarks. This allows a researcher to look at how a landmark has moved relative to other landmarks between specimens. Geometric morphometrics are widely used to look at insect specimens

The software discussed is intended to perform a statistical analysis on warp score variances derived from the programme, tpsRelw32. The relative warp scores produced by

An overview of the software, how it was produced, and the research for which it has been used, including references to relevant research articles. A short comparison with software which implements similar functionality should be included in this section. Please refer to <http://openresearchsoftware.metajnl.com/articles/> for exemplars.

**Implementation and architecture**

How the software was implemented, with details of the architecture where relevant. Use of relevant diagrams is appropriate. Please also describe any variants and associated implementation differences.

**Quality control**

Detail the level of testing that has been carried out on the code (e.g. unit, functional, load etc.), and in which environments. If not already included in the software documentation, provide details of how a user could quickly understand if the software is working (e.g. providing examples of running the software with sample input and output data).

**(2) Availability**

***Operating system***

All operating systems that run Python <confirm at end based on libraries used>

***Programming language***

Python version 3.0

R version 3.3.1

***Additional system requirements***

E.g. memory, disk space, processor, input devices, output devices.

***Dependencies***

E.g. libraries, frameworks, incl. minimum version compatibility.

***List of contributors***

Please list anyone who helped to create the software (who may also not be an author of this paper), including their roles and affiliations.

Greg Holwell, product owner

Zeeshan Sarwar, scrum master

***Software location:***

***Archive*** (e.g. institutional repository, general repository) (required – please see instructions on journal website for depositing archive copy of software in a suitable repository)

***Name:*** GitHub

***Persistent identifier:*** <https://github.com/UOA-MEDSCI-736/nbir012-diptera-morpho>

***Licence:*** The Unlicence

***Publisher:*** Neil Birrell

***Version published:***The version number of the software archived

***Date published:*** dd/mm/yy

**Code repository:** GitHub etc.

***Name:*** UOA-MEDSCI-736/nbir012-diptera-morpho

***Identifier:*** <https://github.com/UOA-MEDSCI-736/nbir012-diptera-morpho>

***Licence:*** The Unlicence

***Date published:*** dd/mm/yy

**Emulation environment** (if appropriate)

***Name:*** The name of the emulation environment

***Identifier:*** The identifier (or URI) used by the emulator

***Licence:*** Open license under which the software is licensed here

***Date published:*** dd/mm/yy

***Language***

English

Language of repository, software and supporting files (including links to documentation)

**(3) Reuse potential**

Please describe in as much detail as possible the ways in which the software could be reused by other researchers both within and outside of your field. This should include the use cases for the software, and also details of how the software might be modified or extended (including how contributors should contact you) if appropriate. Also you must include details of what support mechanisms are in place for this software (even if there is no support).

**Acknowledgements**

Please add any relevant acknowledgements to anyone else who supported the project in which the software was created, but did not work directly on the software itself.

**Funding statement**

University of Auckland Vice Chancellor’s Strategic Funding 2015

**Competing interests**

The author declares that there are no competing interests

**References**

Please enter references in the Harvard style and include a DOI where available, citing them in the text with a number in square brackets, e.g.

[1] Piwowar, H A 2011 Who Shares? Who Doesn't? Factors Associated with Openly Archiving Raw Research Data. *PLoS ONE* 6(7): e18657. DOI: http://dx.doi.org/10.1371/journal.pone.0018657.

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