UNIVERSITY OF CALIFORNIA,
IRVINE

Title of the Thesis

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Biological Sciences

by

William Augustine Dunn

Dissertation Committee:
Anthony A. James, Chair
Xiaohui Xie
Donald F. Senear

2013

DEDICATION

(Optional dedication page)
To …

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ACKNOWLEDGMENTS

I would like to thank...

(You must acknowledge grants and other funding assistance.

You may also acknowledge the contributions of professors and friends.

You also need to acknowledge any publishers of your previous work who have given you permission to incorporate that work into your dissertation. See Section 3.2 of the UCI Thesis and Dissertation Manual.)

CURRICULUM VITAE

William Augustine Dunn

EDUCATION

Doctor of Philosophy in Computer Science   2012
University name   *City, State*

Bachelor of Science in Computational Sciences   2007
Another university name   *City, State*

RESEARCH EXPERIENCE

Graduate Research Assistant   2007–2012
University of California, Irvine   *Irvine, California*

TEACHING EXPERIENCE

Teaching Assistant   2009–2010
University name   *City, State*

REFEREED JOURNAL PUBLICATIONS

Ground-breaking article   **2012**
Journal name

REFEREED CONFERENCE PUBLICATIONS

Awesome paper   **Jun 2011**
Conference name

Another awesome paper   **Aug 2012**
Conference name

SOFTWARE

Magical tool   `http://your.url.here/`
C++ algorithm that solves TSP in polynomial time.

ABSTRACT OF THE DISSERTATION

Title of the Thesis

By

William Augustine Dunn

Doctor of Philosophy in Biological Sciences

University of California, Irvine, 2013

Anthony A. James, Chair

The abstract of your contribution goes here.

Chapter 1

Introduction

1.1 Purpose

Introduce core concepts relating to my project such as:

1. Importance of Dengue and Malaria

2. Transmission cycle dependant on Mosquitoes

3. Limited effectiveness (medical/finacial) of treatmeant of the diseases in rural poor human communities

4. Vector Control Strategies

5. How Transgenesis modifies the vector control landscape

6. Elements of Successful Transgenesic Vector Control

7. Introduction to control of transcription and imoprtance of CRE/CRMs

Chapter 2

Review of Literature Contributions and Development of Analytical Approach

2.1 Purpose

Review a selection of my contributions to the literature that have informed the approach used in this project throughout my tenure as a member of the lab

1. Comparative genomics allows the discovery of cis-regulatory elements in mosquitoes

    - Use of comparative genomics to discover putative CREs from orthologous promoter regions in mosquitoes that were able to be corelated with bloodmeal associated transcription control

2. RNA-seq analyses of blood-induced changes in gene expression in the mosquito vector species, Aedes aegypti

    - relevance

3. Strain Variation in the Transcriptome of the Dengue Fever Vector, Aedes aegypti

    • relevance

4. Comparative Transcriptome Analyses of Deltamethrin-Resistant and-Susceptible Anopheles gambiae Mosquitoes from Kenya by RNA-Seq

    • relevance

5. Complex Modulation of the Aedes aegypti Transcriptome in Response to Dengue Virus Infection

    • relevance

Chapter 3

Software Development to Support Analytical Approach

3.1 Purpose

Illustrate how lessons learned in previous chapter (as well as new lessons introduced here) are addressed through custom software solutions.

1. RNA-seq analysis, reproducibility, updating

2. Integration of multiple disparate Omics scale data types

3. Documentation of exactly how analyses were carried out (IPython notebooks)

Chapter 4

Analysis of Conservation of Midgut Transcriptional Response to Bloodfeeding in Four Vector Mosquitoes

4.1 Background

1. Biological importance of bloodmeal to mosquito

2. Biological importance of bloodmeal to transmission cyc

Chapter 5

Contributions to Literature Not Otherwise Mentioned

5.1 Purpose

xxxxxxxxxxxxxxxxxxxxxxxxxx

1. xxx

Chapter 6

Conclusions

6.1   Purpose

xxxxxxxxxxxxxxxxxxxxxxxxxxx

1. xxx

Bibliography

Appendix A

Appendix Title

Supplementary material goes here.

A.1 Lorem Ipsum

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> "I am glad I was up so late,
>   for that's the reason I was up so early."
> *William Shakespeare (1564-1616), British dramatist, poet.*
> *Cloten, in Cymbeline, act 2, sc. 3, l. 33-4.*

Figure A.1: A deep quote.