

# **iGrad - Year 4 Annual Review**

**Gray, Randall Carey (097982)**  
**S9D, Doctor of Philosophy, Science**



## **Candidate Report**

# iGrad - Year 4 Annual Review

Gray, Randall Carey (097982)  
S9D, Doctor of Philosophy, Science



## Section 1 - Report on Progress

Please advise the progress that you have made since commencement and list all research activity undertaken (e.g. completion of milestones, data collection, chapter writing, submitted and/or published works, conference presentations). Please also outline any problems that have affected your progress (e.g. technical, personal, supervisory, lack of equipment or access to resources, etc.) You must also advise what steps have been taken in response to these problems AND any future actions that may be required.

**Note:** It is essential that any problems are discussed at supervisory meetings. Failure to implement strategies to address delays may affect future applications for extensions of candidature and / or scholarship.

I had planned that this year I would construct a collection of example systems which would be "case examples" for use in a set of papers. The first paper will present the simple models which use a "representation-switching" strategy to improve their utility. This paper will act as a template for other researchers to use in applying the techniques, and will provide the context for a second paper which will address the mathematical bases for deciding when to switch representations, constraints on the structures of submodels and the mathematical relationships which must be preserved mapping one representation to another.

My initial approach was based closely on the contaminant contact and uptake model, but this proved insufficiently flexible for the more general cases I have in mind. I've spent the last few months reworking the underlying framework and I am putting together the first of the case examples now. Simon suggested at the beginning of the year that I should base the modelling on something like CLOS or one of the other "class" packages, but I was (foolishly) convinced that the model in the contaminant-contact paper would be an adequate basis for further work.

I lost about three weeks this year due to work commitments namely writing a chapter on modelling frameworks which are suitable for assessing strategies for adapting our societies, industries and infrastructure to changing climate. There was a tight deadline, and I just had to meet it. This paper was the last bit of my involvement in that project, so I don't anticipate that sort of problem reoccurring.

I am hoping to get the "demonstration" paper done by the middle of next year. I am writing much more quickly these days, and am much more comfortable with how to present the material, so the biggest hurdle will be just pulling the first two or three examples together (the rest are largely based on the same set of models).

I'm providing Simon with the framework and the models I have so far, and he'll be able to keep me on the rails.

I've dropped from full-time work to 80% to increase the time available for this work, and things are now coming together. The kernel which mediates the interactions of the models is working and complete, the basic model types needed for all of the case examples are working and complete, and I am now deriving specific models from those base classes.

I'm not content with the raw quantity of what I have produced and I am annoyed that I didn't take Simon's advice about needing to rework what I had thought of as a "solved" problem; I am in a much better position now than I was, and I feel reasonably confident that it will make the remaining work easier.

Since commencement have you identified any actions / issues in regards to:

Research Timeline	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Infrastructure	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Occupational Health & Safety	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Regulatory Approvals (e.g. Ethics)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Intellectual Property	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
If you have answered yes to any of the above, have you updated your Research Plan?				
	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

## Research Plan

# iGrad - Year 4 Annual Review

Gray, Randall Carey (097982)  
S9D, Doctor of Philosophy, Science



You can attach an electronic copy of your research plan.

No files attached

## Section 2 - Supervisory Meetings

How satisfied were you with your supervisory meetings?

☒ Satisfied ☐ Neutral ☐ Unsatisfied

Please provide details:

Simon always offers good advice, and I have learned over this last year that I should usually take it -- *particularly* if it isn't what I expect. I also have regular contact with Vincent Lyne and Beth Fulton, and they are happy to have me bounce ideas off them when Simon isn't available.

## Section 3 - Other Comments/Concerns/Issues

Examples include:

- Specific topics you wish to discuss in the meeting
- Any information/assistance that may be required (e.g. assistance with time management, training to use equipment, English language assistance, etc.)
- Impressions about the candidature so far and/or the direction of the HDR
- Graduate Certificate in Research elective options (where applicable)
- Future opportunities (e.g. conference attendance, career goals etc)
- Suggestions to improve HDR candidature within the School or within the University.

If you have any other comments, concerns or issues please provide details below:

No text entered.

## Section 4 - Additional Person (optional)

You may request permission to have an additional person, who is not an immediate family member or a legal representative, in attendance at your meeting. This person is an observer only and is not permitted to take an active part in the meeting. Your request must be received by your Graduate Research Co-ordinator at least 7 days before the meeting. If the request is not approved by your Graduate Research Co-ordinator you may appeal this decision to the Dean of Graduate Research.

Name of Requested Additional Person:

Relationship to you: