Goldsmiths
UNIVERSITY OF LONDON

Goldsmiths, University of London
Department of Computing

MPhil & PhD in Arts and Computational Technology
and
MPhil & PhD in Computer Science

Student Handbook

2018–2019

This handbook contains important information and should be retained throughout your programme.

It should be used in conjunction with the Graduate School Research Handbook.

This handbook is available electronically and in large print format. If you would like a large print copy please contact The Student Office computing@gold.ac.uk. It is also available on the web at https://learn.gold.ac.uk/course/view.php?id=7991.

Disclaimer

We have made every e ort to ensure the content of this handbook is up to date as of September 2018. It may become necessary to make material changes to your programme, including changes to the modules and delivery of your programme. Such changes may be required for financial, regulatory or academic reasons including (but not limited to); industrial action, insu icient student numbers on a particular module or programme, change in government policy, withdrawal or reduction of external funding, the requirements of the quality code of the Quality Assurance Agency or a change of law. If you will be a ected by such changes, Goldsmiths will seek to notify you as soon as possible or to publish such changes on our website.

We do not accept liability for the accuracy or reliability of any information contained within third party publications referred to or signposted to in this handbook.

Student Contract

You are required to enrol at the beginning of your programme of study at Goldsmiths, to re-enrol annually and to follow the relevant procedure (available upon request) if you decide to withdraw from your studies.

By enrolling, you are entering into a contract with Goldsmith. More information about your contract can be found online at https://www.gold.ac.uk/governance/students/student-contract/.

Your contract is made up from a number of key documents provided to you either before, during or after your studies with us.

The terms and conditions provided to you with your o er letter are very important and set out some of the key terms governing our relationship with you.

Force Majeure- matters outside of our control impacting on the student contract

A key term of the contract is referred to as a 'force majeure' clause. Goldsmiths endeavours to take all reasonable steps to provide educational services including teaching, examination, assessment and other related services, set out in its prospectuses and programme literature ('Educational Services'). However, except where otherwise expressly stated, Goldsmiths regrets that it cannot accept liability or pay any compensation where the performance or prompt performance of its obligations to provide Educational Services is prevented or a ected by 'force majeure'. 'Force majeure' means any event which Goldsmiths could not, even with all due care, foresee or avoid. Such events may include (but are not limited to) war or threat of war, riot, civil strife, terrorist activity, industrial disputes (including strike action, and actions short of strikes), natural or nuclear disaster, adverse weather conditions, interruption in power supplies or other services for any reason, fire and all similar events outside our control.

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1. INTRODUCTION

1.1. Welcome

Welcome to the Department of Computing. We look forward to working with you in this vibrant and unique intellectual community, and hope your time here will be both enjoyable and rewarding.

This handbook is designed to help you make the most of your time by providing you with essential information. If the information you require is not contained within this handbook, please contact the Computing Student Office or the Student Centre.

1.2. Purpose of this Handbook

The purpose of this handbook is to give you useful information pertaining to the MPhil and PhD programmes in the Department of Computing, and to let you know where you can find information you will need throughout your studies and the services available to assist you. The information in this handbook is relevant to students enrolled in the Arts and Computational Technology programme and the Computer Science programme. Please read this handbook carefully and retain it throughout your programme. This handbook is also available on the department's Student Office VLE page:

https://learn.gold.ac.uk/course/view.php?id=7991

This handbook is meant to be read in conjunction with other key sources of information, detailed below in Section 2.

1.3. Department of Computing

The Department of Computing is a vibrant, innovative and challenging department at Goldsmiths, focusing on the advancement of computing in many different technological areas including artificial intelligence, biology and genetics, cognitive science, computer games and entertainment, computer music, computer vision, design, digital arts, archaeology and architecture, haptics as well as in computer science itself. We are arguably Europe's leading department for the combination of mainstream computing research, and its creative and innovative application in key interdisciplinary areas.

Awarded over £15 million in research grants in the last five years, we have a unique vision of computing research as an interdisciplinary set of practices, methods and techniques. As a result, our research renews and invigorates computer science as a discipline through a range of unusual forms of engagement and activity: artistic works, musical performances, social science studies, alongside the more traditional peer-reviewed paper outputs.
96% of our academic research was judged 'internationally recognised' (2014 Research Assessment Exercise), of which 68% was classed as 'internationally excellent'. We are in the top 20 computer science departments in the UK for research intensity - and in the top four in London (Source: Times Higher Education Supplement).

1.4. MPhil/PhD Programmes in the Department of Computing

The Computing Department offers three MPhil/PhD programmes: The MPhil/PhD in Arts and Computational Technology (ACT), the MPhil/PhD in Computer Science (CS), and the MPhil/PhD in Intelligent Games and Game Intelligence (IGGI). The ACT programme and the CS programme—the subjects of this Guide—share similar completion timelines and regulations, while also having in common many PhD supervisors and administrative support personnel. However, the expectations

around the nature of the research and content of the thesis differ somewhat between ACT and CS students.

1.4.1. MPhil and PhD in Computer Science (CS)

Examples of areas in which we offer MPhil/PhD supervision include computational creativity, generative music systems, music analysis, computer vision, interactions between art and technology, gaming, adaptive hypermedia systems, intelligent agent theories, databases and information systems, data science and machine learning, program transformation and analysis, design and analysis of algorithms, neural computation, genetic algorithms and artificial intelligence.

1.4.2. MPhil and PhD in Arts and Computational Technology (ACT)

The MPhil/PhD ACT is the only programme in the University of London in which students can include creative work and an arts-based context of their practice within the distinctive field of arts and creative technologies. The programme is based within Goldsmiths Digital Studios, a multidisciplinary research centre that links computing to other world-leading Goldsmiths departments including cultural studies, design, drama, media and communications, music, psychology and visual arts.

1.4.3. *MPhil and PhD in Intelligent Games and Game Intelligence (IGGI)*

This EPSRC[1] funded doctoral programme, run jointly by Goldsmiths, Queen Mary and Universities York & Essex, combines practical skills training with advanced teaching in cutting-edge research topics and the chance to contribute original research to a growing academic area. Students undertake industrial placements during the programme, giving them first hand industrial experience that will influence their research projects. Graduates will have the skills needed to succeed in a career in games, having also developed strong relationships with the leaders in the UK digital games industry.

1.5. OTHER SOURCES OF INFORMATION

The Student Charter sets out the standards of service that the University aims to provide. It also sets out what the University expects of you. The quality of service that we believe you are entitled to expect is, therefore, balanced with responsibilities placed on you as a student. Both are intended to ensure that you gain maximum benefit from your time with us:

https://tinyurl.com/goldsmithsstudentcharter

There are other important sources of information:

- **Student Services**: here you will find information to assist you during your time as a student at Goldsmiths. Our staff is available to offer help and support with many of the practical elements of student life. www.gold.ac.uk/student-services/.
- **Student Experience and Engagement Strategy**: Goldsmiths is committed to delivering an excellent student experience. This takes collaboration and a commitment to continuous improvement. An excellent student experience is the responsibility of everyone at Goldsmiths, and is achieved through the joint endeavour of our community of academic and professional services staff, students' union, and students:

  http://www.gold.ac.uk/media/documents-by-section/staff-and-students/student-gold/Student-Experience-Strategy.pdf

[1] Engineering and Physical Sciences Research Council https://www.epsrc.ac.uk/

- **The Goldsmiths Student handbook**: this handbook on the VLE provides important information about studying at Goldsmiths and about the services we offer to you. It is a useful place to start when trying to find information and all students should read this handbook. Importantly, this handbook contains detailed information about assessments: https://learn.gold.ac.uk/course/view.php?id=9360

Throughout your time at Goldsmiths we will communicate with you in a number of different ways and formats. Formal correspondence, which includes information on enrolment, fees, and assessments, will primarily be sent by email. On occasion we may communicate with you by letter. So that we can reach you, it is essential that you keep your contact details – including your term time and/or home addresses, phone number and personal email address up-to-date on your MyGoldsmiths account. You can review and edit your details by logging in at www.gold.ac.uk/mygoldsmiths.

We regularly send emails to your Goldsmiths email account so we advise you to check it often.

2. GENERAL COMPUTING DEPARTMENT INFORMATION

2.1. Term Dates 2018–19

Autumn term

24 September - 14 December 2018 Teaching begins 1 October
Reading week: w/c 5 November 2018

Goldsmiths will be closed

24 December 2018 - 1 January 2019

Spring term

14 January - 29 March 2019
Reading week: w/c 18 February 2019

Goldsmiths will be closed

18 April - 23 April 2019

Summer term

29 April - 21 June 2019

Postgraduate programmes may work to different term dates. All term dates are on the web at www.gold.ac.uk/term-dates/

2.2. Relevant Staff

The staff below are likely to be your first points of contact, apart from your supervisors. All other staff information, their research interests and contact details can be found on the Department's website: http://www.gold.ac.uk/computing/people/

Robert Zimmer and Christophe Rhodes: Heads of Department (computingHOD@gold.ac.uk)

Aaron Gerow: Postgraduate Tutor and Chair of Postgraduate Research (PGR) Committee (a.gerow@gold.ac.uk)
Contact Aaron for queries regarding studentships and bursaries; research ethics; regulations of research degrees; problems with a supervisor; upgrade or final examinations (but only after consulting your supervisor).

Lucy Jeczalik: Student Office Assistant (Research Students, Events and Publicity) and current Secretary of Computing PGR Committee (l.jeczalik@gold.ac.uk)
Contact Lucy for queries regarding Mphil/PhD programmes' administration including, for example, First Term reports, Annual Progress reports and any IGGI related administrative matters.

Eamonn Martin: Department IT Systems Administrators (e.martin@gold.ac.uk)
Contact Eamonn for queries regarding: departmental email lists; departmental intranet; igor.gold.ac.uk.

Creative Facilities (Tech) Team (facilities@gold.ac.uk)
Contact the tech/facilities team for queries about department IT equipment, such as lab spaces, exhibition spaces, specialist facilities & equipment (including inductions, training & bookings). The specialist facilities include SIML media lab, the Goldsmiths digital studio, digital fabrications & project space.

Karen Hodgson: Department Facilities Co-ordinator (k.hodgson@gold.ac.uk)
Contact Karen for queries relating to the department's general facilities and estates matters.

2.3. Mailing Lists

The department maintains a large number of mailing lists which are used for communicating important information, advertising events, and for general discussion. Lists include:

- research-students@doc.gold.ac.uk: all MPhil/PhD students
- pgr-act@doc.gold.ac.uk: ACT MPhil/PhD students
- phdactnews@doc.gold.ac.uk News for ACT MPhil/PhD students
- pgr-cs@doc.gold.ac.uk: CS MPhil/PhD students
- iggi@doc.gold.ac.uk IGGI MPhil/PhD students and related staff

A comprehensive list of all department mailing lists is available online at www.doc.gold.ac.uk/wiki/systems/index.php/Department_of_Computing_Mailing_Lists

Your College email address should be automatically added to the appropriate lists. It is important that you check this email account regularly to ensure that you receive relevant information from College and from the Department. Please contact Eamonn Martin if you believe you are not receiving mail from a list, or cannot post to a list.

2.4. Communication

The department will often use your University email address to communicate with you, so please make sure your College e-mail is configured and that you are checking it regularly. You should notify the Department of Computing if any of your contact details change. It is important that you provide details of your telephone numbers, email addresses and home addresses to your supervisors to enable them to contact you.

The College provides a webmail interface at http://goldmail.gold.ac.uk, but it is recommended to use a proper email client configured with your account.

2.5. Intranet and Forum

The Department maintains an intranet site which can be found at:
http://www.gold.ac.uk/computing/intranet/
For students, this includes:

- your personal profile which also contains links to relevant progress reports
- links to information about all the courses (undergraduate and postgraduate taught modules) run by the Department;
- links to the Department teaching timetables;
- extensive information on Department IT facilities including: information on using Department managed computers; Unix instructions; MySQL instructions; information on using igor.gold.ac.uk.

If you undertake any teaching work for the Department, you may require access to some of the staff intranet pages which provide facilities such as courses enrolment lists to be used for taking registers of attendance. Also linked from the intranet pages is the Department Web Forum. This provides an alternative mechanism to the mailing lists for communicating with members of the Department.

3. DEPARTMENTAL FACILITIES

Please refer to the campus map to find locations mentioned in this section.
https://www.gold.ac.uk/media/documents-by-section/about-us/contact/Goldsmiths_site_map.pdf

3.1. Sites

25 St. James
The main Department offices are in 25 St. James. Some staff have offices in 29 St. James. Both these buildings have keycode locks on the door. Please ask a member of Department staff for the codes to these doors. 25 St. James is also the location of the Department's Seminar Room.

Ben Pimlott Building
Department facilities in the Ben Pimlott Building include: the Goldsmiths Digital Studios on the ground floor; and staff and postgraduate office space on floor 2.

Richard Hoggart Building
There is a departmental research space in the Richard Hoggart Building (Room 329) as well as two computer labs which are used for teaching.

3.2. Computing Specialist Technical Facilities

Please contact facilities@doc.gold.ac.uk for further information on all these facilities, including inductions.

We have specialist facilities available to students, subject to your course, module registration and final project requirements:

- Computer labs in RHB306, RHB306a, WB219 and St James Block 3;

- HatchLabs (G11 coworking space; G12 laser cutting and 3D printing room; G13 woodworking room);
- Motion Capture Lab (Mo-cap);
- Sonic Immersive Media Lab (SIML);
- Games Lab
- PhD Lab in Ben Pimlott Building Ground Floor

Want to use our Creative facilities?
Sign up to Department of Computing: Creative Facilities page on the VLE learn.gold.ac.uk and visit our online resource booking system (equipment and facilities): booking.doc.gold.ac.uk

Important: you must successfully complete induction training before you can book any resources. Induction schedule will be published on our learn.gold.ac.uk page.

Tech Team
Room 2, Hatcham House
17-19 St James
E: facilities@doc.gold.ac.uk
T: 0207 919 2127
Tech Office is open Monday-Friday from
10am-12noon and 2-4pm.

Please ask a member of Department staff for the door codes to access facilities without swipe card access.

3.3. Desk Policy

The department desk policy aims to ensure that research groups (consisting of PhD students, faculty, postdocs, and other researchers) have adequate space that it is easier for PhD students to work on campus, and that space is allocated in a fair, consistent, and efficient manner.

3.3.1. Types of desks

The department provides three types of desk for use by PhD students and other researchers. These include individual desks assigned to one person, who always has priority for working at that desk; bookable shared desks, which are bookable by students and researchers through our online booking system, some of which are designated as being prioritized for use by specific research groups; and “hot desks” which are available on a first-come, first-served basis.

All full-time researchers and students will be given access to some dedicated bookshelf space, and the department is working toward purchasing locker space for valuables.

3.3.2. Desk eligibility

Individual desks are for the use of full-time PhD students and researchers who work in the department 4–5 days per week. The order of priority for assigning individual desks is:

1. Paid researchers or postdocs working fulltime or nearly fulltime (4–5 days/week) on a project headed by a member of the computing department
2. Full-time status, funded MPhil/PhD students within the official duration of the program (typically 3 years for ACT and CS students), whose primary advisor is a member of the Computing department
3. Full-time Mphil/PhD students who require dedicated computers for their research (e.g., to run certain software)

4. Other full-time unfunded Mphil/PhD students, and/or full-time funded Mphil/PhD students who have exceeded the time of their program, who would benefit from having a desk (to be decided on a case-by-case basis, with the supervisor & student)
5. Any others, subject to individual negotiation with supervisor, student, and the Department's Postgraduate Research Committee

Bookable shared desks may be booked by any Mphil/PhD student or researcher, regardless of frequency of time in the department. We expect individual researchers and research groups to self-organize to establish and communicate appropriate guidelines and procedures. For example, 2 or 3 individuals may rotate use of a desk and establish a schedule amongst themselves; bookable desks with computers managed by a research group should communicate that priority is to be given to members of the research group.

Hot desks are available on a first-come, first-served basis, and they are usable by any Mphil/PhD student or researcher.

3.3.3. Procedure for desk assignment

The default for a new MPhil/PhD student shall be the use of bookable desks and hot desks. If the supervisor and student believe that the student will be working at Goldsmiths 4–5 days per week and would benefit from a dedicated individual desk, the supervisor should contact the Postgraduate Tutor as soon as it is known that the person will be coming to Goldsmiths so that arrangements may be made ahead of time. The Postgraduate Tutor will advise on whether space is available, given the priority order listed above. If no space is available, the person will be placed on a waiting list for an individual desk, and a desk will be assigned as soon as it is possible (e.g., when a current student graduates).

It is the responsibility of each research project leader to arrange for allocation of project-specific computers to sharable desk spaces, when that is applicable (i.e., when multiple members of a project will need access to a shared machine, but individually allocated desks are inappropriate). The project leader should contact the Postgraduate Tutor as soon as new desk needs arise, in order for the department to make appropriate arrangements.

Desk assignments will be reviewed once per term (September, January, April), at which point students/researchers who are not coming in 4–5 days/week, who are no longer full-time, who have exceeded their standard programme duration, etc. may be asked to switch from an individual desk to a bookable or hot desk in order to make room for new members of the department.

3.3.4. Other Information

Allocation policies are negotiable on a case-by-case basis. We invite staff and students to keep the research committee and Postgraduate Tutor informed of how these policies are working and how they may be improved in the future.

3.4. Resources and Printing

Pigeon Holes, Post

On the ground floor of 25 St. James there is a Department Resources Room. This room contains pigeon holes for staff and postgraduate research students. This is the best mechanism to deliver paperwork to staff and other postgraduate research students. Please check your own pigeon hole in the A-Z section regularly. If you need to have mail delivered to the Department, please use the following postal address:

[Name]
Department of Computing
Goldsmiths, University of London
New Cross
LONDON
SE14 6NW

Printing
RHB research space and BPB 2nd floor, have printers which are available for your research related work.

4. RESEARCH SUPERVISION

4.1. Primary and Secondary Supervisors

College policy requires that all postgraduate students have two supervisors: a primary supervisor and a second supervisor. All students within Computing are therefore team supervised (usually by two supervisors, but occasionally by more).

4.1.1. Choosing a Primary Supervisor

- ACT students should identify the area you wish to work in and a suitable supervisor, if you have not done so already. To help you do this, you should examine the research backgrounds of all the members of staff in the department. Information on the research interests of all members of the Department of Computing can be found online at http://www.gold.ac.uk/pg/mphil-phd-computer-science/ http://www.gold.ac.uk/pg/mphil-phd-arts-computational-tech/
- CS students should have already established who your primary supervisor will be.

4.1.2. Choosing a Second Supervisor

All students are encouraged to identify a suitable second supervisor as soon as possible. In order to identify a suitable second supervisor, you are encouraged to discuss with your primary supervisor, and to use the Goldsmiths website to examine research interests of academic staff across the department and across the university.

- Note: ACT students will typically have one of their two supervisors from arts practice and one from computer science and/or creative technologies. This combination reflects and embeds the principle of interdisciplinarity. Supervisors are also drawn from the Centre for Cultural Studies, The Centre for Urban and Community Research, Music, Art, Design, Media and Communications and Drama.

When the student's primary supervisor is the Principal Investigator (PI) of a research project employing the student, we **strongly encourage** the student to have a second supervisor who will take an active role in supervision (i.e., not acting as a "reserve supervisor"), and to identify this second supervisor as soon as possible. In such a situation, conflicts of interest may arise between the project goals and the student's goals, and it is important to have a second supervisor who can provide objective guidance.

Commented [1]: I think I disagree with the spirit of this -- I'd argue that funded students are obligated to align with a project.

4.1.3. Regulations Regarding Supervision

The College maintains additional regulations concerning who may act as supervisors and in what capacity (e.g., co-supervisor, associate supervisor, reserve supervisor). For example, the main supervisor must typically have completed a PhD or have supervised a PhD student to completion.

Allowances can be made in exceptional circumstances where the programme leaders and supervisors are confident that the main supervisor's expertise can support the student's doctoral research and where the secondary supervisor plays a strong advisory role. Please refer to the Graduate School Research Student Handbook for more information about these policies.

4.2. Supervision Record Forms

Supervisors and students must ensure that each supervision meeting is recorded on a Supervision Record Form. The form is in the Appendices, but in practice these forms should be completed via student's profile page on the department intranet https://www.doc.gold.ac.uk/dept/Intranet by the student and his or her respective supervisors. Please see your intranet profile for the link.

4.3. First Term Report

After your first full term as an enrolled student, you will submit a First Term Report. This form is also available on the department intranet via the student's profile page.

The first term report addresses the following questions:

a. Have a clear project proposal and the objectives of the project been established?
b. Is the project suitable within the programme of study and any associated award?
c. Does the student have the skills, knowledge and aptitude for successful completion of the project?
d. Is it feasible to complete the project on time, taking account of any institutional regulations and other stakeholder interests (e.g., funding bodies) or requirements?
e. Are there regular meetings between the supervisee and supervisor(s), and is there a dated log or record of such meetings?

4.4. Annual Progress Review Panels and Annual Progress Reports

Each year all part-time and full-time MPhil/PhD students present work to the research community as part of the annual review process and in order to complete the Annual Progress Report (APR). This is a College and Graduate School requirement. All APRs are then considered by the department's postgraduate research committee and subsequently logged with the College's Graduate School.

The APR form is completed electronically on the department intranet. This form must be filled out by the student, then by the first and second supervisors, before being submitted to the Postgraduate Tutor in time for review by the Postgraduate committee. Internal departmental deadlines for submission of these forms will be advertised via e-mail each spring.

4.5. Tutorials

In addition to regular meetings with your supervisors you may find it useful to discuss your project with other members of faculty. If this is this case you should contact your lead supervisor to see what can be arranged on your behalf.

4.6. Registration Periods

Goldsmiths enforces strict and absolute registration periods. The details of these requirements are available in the Graduate School Research Student Handbook. Students who fail to complete in the allotted times not be allowed re-enroll nor submit.

5. PRACTICE-BASED RESEARCH IN THE ACT MPhil/PhD

5.1. Forms of Registration

The PhD in Arts and Computational Technology is the only programme in the University of London in which students can include creative work and an arts-based context of their practice within the distinctive field of arts and creative technologies. As such, we call it a practice-based research programme.

5.2. Research Students

We expect you to enter with a 2.1 degree or an MA / MFA in arts and technology and related subject areas or with artistic and technical experience in arts and technology deemed sufficient to stand in lieu of formal qualifications. We would also expect you to have (and subsequent to your formal interview) the ability further to develop your research project by showing the following skills:

- Research skills, techniques and management.
- Appropriate technical skills in support of the work you wish to make.
- Appropriate writing skills, including and understanding of different writing conventions.
- The ability to participate and communicate your ideas in seminars and the public domain

The convergence of arts and technology is not new but the opportunities for artists and technologists working in artistic domains have long encountered difficulties in finding appropriate ways to 'measure' artistic practice in 'practice-based research' term, in identifying appropriately flexible and experimental forms of artistic and technological research outcomes. GDS provides and supports researchers' work individually and collaboratively, to develop artworks and critical investigations to create and extend the technologies of culture while provoking investigations into the social and technological implications of technology developments. At research level we aim is to support reflection upon contemporary issues at intersection of digital work, emerging technologies, and aesthetic expression and how these issues impact on our culture.

For the practical/technological component of the PhD original work, the thesis may include a portfolio, e-exhibition or other form of dissemination appropriate to your research project. This must be original work locating the ideas developed in conjunction with the written part of the thesis. However presented, your work should also be accompanied by an approved form of documentation which could be in an appropriate form.

You should also keep a research blog and journal.

The written and aesthetic components of the thesis form a coherent and integrated whole. The written component of the thesis must engage with and discuss the artistic and technological representations and findings that are to be disseminated in a variety of ways. The written component must also situate the research topic within a wider cultural and social context and show that you can exercise critical judgements and aesthetic awareness in the arts and technology field.

5.3. Thesis Requirements

The PhD in Arts and Computational Technology comprises:

- A written thesis of 60,000-80,000 words, with 60,000 as the indicative target length and 80,000 as the absolute upper limit

- A practical/technological component in a form appropriate to the student's artistic and technical project

If you do not wish to complete a PhD you can instead submit appropriate material for the MPhil degree as follows:

- a written thesis of 20,000-40,000 words, with 30,000 words as the indicative target length and 40,000 as the absolute upper limit
- a practical/technological component in a form appropriate to the student's artistic and technical project.

For upgrading to PhD status, those presenting a standard written thesis would normally be required to submit a detailed thesis outline, plus two draft chapters (approximately 20,000 words). However, as you are registered for the research degree in Arts and Computational Technology you may submit a detailed treatment of your practical/technological work in lieu of one of these chapters.

The Arts and Humanities Research Council has defined research primarily in terms of research processes rather than outputs. This definition is built around three key features of any doctoral research proposal:

- It must define a series of research questions or problems that will be addressed in the course of the research. It must also define its objectives in terms of seeking to enhance knowledge and understanding relating to the questions or problems to be addressed.
- It must specify and explain a research context for the questions or problems to be addressed. It must specify why it is important that these particular questions or problems should be addressed, what other research is being or has been conducted in this area and what particular contribution this project will make to the advancement of creativity, insights, knowledge and understanding in this area.
- It must specify the research methods for addressing and answering the research questions or problems. In the course of the research project, how to seek to answer the questions, or advance available knowledge and understanding of the problems must be shown. It should also explain the rationale for the chosen research methods and why they provide the most appropriate means by which to answer the research questions.

Creative output can be produced, or practice undertaken, as an integral part of the research process. However, the outcomes of practice must be accompanied by documentation of the research process, as well as some form of textual analysis or explanation to support its position and to demonstrate critical reflection. A thesis arising from a practice-based research process, such as the one given above, is expected to both show evidence of original scholarship and to contain material that can be published or exhibited.

5.4. Comments on Practice-Based PhD work

You should, in any case, read the Graduate School Handbook for Research Students to comply with the criteria established for practice-based PhD work. Your project should:

- consist of the candidate’s own account of her/his investigation and must indicate how they appear to her/him to advance the study of the subject. This account must cover the relationship between the written and the practical/technological component of the thesis.
- form a distinct contribution to knowledge of the subject and afford originality by the discovery of new facts and/or by the exercise of independent critical power. The criterion of quality will

only be ascribed to the whole presentation, encompassing both written and the practical/technological component.

6. TRANSFER OF REGISTRATION (THE "UPGRADE")

6.1. Procedure

The "upgrade" is the point at which MPhil students transfer to PhD registration status. If you are registered full-time you would normally expect to upgrade during the middle of your second year. If you are part-time then the process is longer. Please check with the Graduate School. The university-wide regulations governing the upgrade process can be found in the Graduate School Research Student Handbook. Further regulations and advice specific to the Department of Computing are outlined here.

At Transfer of Registration there will be an oral/viva voce examination by two academic members of staff.

- For ACT students, one member will be internal to GDS (and a member of the postgraduate committee) and one external to the Department.
- For CS students, both members of the committee may be members of the Computing department, though this is not required.

This transfer process is modelled on the University's Guidance of the Conduct of PhD oral examinations. This means:

- Only the agreed examiners, the supervisor(s) and the candidate may be present at the oral examination.
- The supervisor can only attend the oral examination as an observer and by agreement with the candidate.
- The supervisor may act as a "silent witness" but can contribute only if invited to do so by the examiners. You are given every opportunity, encouragement and time to explain and present your research project, both practical / technological work and written text.
- Your lead supervisor is responsible for organising the timetable of your upgrade and advising on prospective examiners.

6.2. Information for CS Students

CS students should follow the requirements for transfer of registration outlined in the Graduate School Research Student Handbook. Specifically, requirements for upgrading include

- satisfactory completion of any required postgraduate training courses; a plan of the thesis
- a realistic timetable for completion within a 3 year period (full-time) or 5 year period (part-time) from date of initial enrolment
- two draft chapters of research or equivalent work, one which will include a substantial amount of work on the relevant literature, and an oral examination by at least two persons one of whom must be from the Departmental Postgraduate Research Committee. An associate or reserve supervisor can be one of these examiners; however, a main or academic co-supervisor cannot, although they may be present in addition.

6.3. Information for ACT Students

As a student enrolled on the PhD in Arts and Computational Technology you are able to include creative work and an arts-based context of your practice within the distinctive field of arts and

creative technologies. This means that you need to present both practical/technological work and written text for transfer. You should provide your examiners with all written material at least 3 to 4 weeks in advance of the examination.

6.3.1. What do you need for transfer?

Your upgrade report should include...

- A title.
- An abstract which explains your whole project, paying particular attention to the relationship between your practical/technological work and written element.
- A chapter outline which follows on from the abstract. This should give an outline of the contents of each chapter. As a guideline, the summary of each chapter should be no more than 500 words. It is entirely up to you as to how you divide your text into appropriate chapter lengths but as a further guideline try not to exceed 15,000. Normally, each chapter is about 10,000 words in length but there could be variation according to the drive of your argument so that each chapter has a different weight and length.
- A 'literature review'. This is a critically evaluative review of your key source material that you are planning to use in your written text and can include non-textual material. The `review' could be an integral element of your draft chapter or it could be a series of commentaries on key texts that you consider essential to the development of the written element of your project (and therefore separate from your draft chapter). It is also possible to submit a literature review in the form of an annotated bibliography of a more extensive field of texts which you consider relevant to the development of your subject. The decision should be made according to the appropriateness of each to your overall project.
- A timeline towards the completion of your project. This would be part of time management and although not set in stone, it should enable both you and the examiners get a realistic sense of how you are organising your material towards completion.
- A bibliography, divided into key and supplementary sources.
- A chapter of research or equivalent work. **This means the practice based element.** Your text should be a section of writing of at least 10,000 words and show the potential for publication, thereby being a coherent text showing signs of analysis and/or argument. It should be titled and correspond to your chapter plan. For your practice you should prepare a slide presentation, prototype or website to indicate the progress of your work.

There is no prescribed style for an upgrade report. However, it is important to recognize that different styles and structures of an upgrade report will be applied in different kinds of research. Consult with your supervisor regarding how best to structure an upgrade report for a given research area.

6.4 Successful Upgrade

The upgrading student should bring to the upgrade a copy of the upgrade form, found at the Grad School Virtual Office on the VLE. If the upgrade is successful, this form will be signed by the examiners, forwarded for signature to the Postgraduate Tutor, and then forwarded to the Graduate School to complete the Transfer of Registration.

7. SUPPORT FOR YOUR RESEARCH

7.1 The Graduate School

The Graduate School is an interdisciplinary space for postgraduate students. It aims to encourage students to have intellectual and social contact with each other, which are less likely within individual academic departments. The Graduate School provides a number of services and resources to students. Details on several programmes are below; more information can be found at www.gold.ac.uk/graduate-school/research.

For further information, you can also contact:

Chris Robson
Head of Graduate School
Goldsmiths, University of London
Whitehead Building Room 117
London SE14 6NW

Please contact Chris Robson for an appointment on c.robson@gold.ac.uk

You can also email the Graduate School at graduateschool@gold.ac.uk or contact Gillian Mcwhirt on 0207 919 7774

7.1.1. College Induction Programme

The Graduate School runs the College induction programme, which you are expected to attend during the first week of your academic year. Students starting in winter or spring should attend the Induction in the following September.

7.1.2. Graduate School Festival

The Goldsmiths Graduate Festival is a celebration of postgraduate research in Goldsmiths, other UK universities and internationally. It is organised by and for postgraduate research students. The College requires that all first year research students give presentations of their research projects in the Festival's Postgraduate Symposium. It gives you an opportunity to meet other researchers from other departments. It is advisable to circulate a short written text in advance of your presentation.

Your presentation should focus on: the whole research project and the connections between practice based components and the written element. It should be accessible to a less specialist audience and be delivered in 10 minutes.

For more information: http://www.gold.ac.uk/graduate-school/

7.1.3. Research Training Courses

All research students, regardless of department, are strongly encouraged to enrol for the training courses provided by the Graduate School. They have been designed in the context of best practice guidelines produced by Research Councils.

The Graduate School offers training courses including core qualitative research methods, core quantitative research methods, and academic practice for PhD students and early career researchers. More information can be found at the URL below, or by contacting the Graduate School directly. For more information: https://learn.gold.ac.uk/course/view.php?id=2376

7.2. Computing Department Induction

All new MPhil/PhD students should attend the Computing Department induction in September when they arrive (or in the September following arrival, for students beginning at other times of the year). The 2017 Induction event is scheduled for Thursday, 28 September 2017.

7.3. The Whitehead Lectures on Cognition, Computation & Creativity

The Departments of Computing and Psychology at Goldsmiths organise regular seminars by guest speakers throughout the academic year encompassing various aspects of cognition, computation and creativity. All are welcome to attend. To be added to the announcement list, please contact Prof. Frederic Fol Leymarie by email: ffl@gold.ac.uk.

8. RESEARCH ETHICS

As a research student in the Computing Department, there are two research ethics committees that apply to you; the Department Research Ethics Committee and the College Research Ethics Committee. You can find information on the College research ethics procedure at:
http://www.gold.ac.uk/research/ethics/

8.1. When to Consult the Research Ethics Committee

If any of your research activities involve working with people (including surveys, user testing, observational studies, psychological experiments), with animals, or with the environment you must seek approval for the work from the Research Ethics Committee.

8.2. Who to Contact

In the first instance, you should contact the Department Research Ethics Committee through the Postgraduate Tutor. If the Department Committee cannot approve your research, you will be referred to the College Research Ethics Committee.

9. DEPARTMENTAL SERVER igor.gold.ac.uk

The Department maintains a server for use by staff and students called igor.gold.ac.uk. This server runs GNU/Linux, a Unix-like operating system that provides many of the standard utilities found on Unix systems. Additional information on igor can be found at:

https://www.doc.gold.ac.uk/intranet/systems/faq.html

10. RESEARCH EXPENSES

We operate an application process for the reimbursement of research expenses for research students. The research expenses application form is available on the department intranet (https://www.doc.gold.ac.uk/intranet/academic/pgr/). You should complete the form giving the details of the event that you wish to attend, and indicate if you are applying for registration, travel or accommodation costs. You should ensure that you have attached a statement of support from your supervisor and submit the completed form, well in advance of any registration deadlines, to the departmental research administrator.

All research expenses applications are considered by the departmental Postgraduate Research Committee. Incomplete applications, including those without support from your supervisor, will be automatically rejected. You will be notified of the outcome of your application by the Department Business Manager (or by a DBM nominated member of staff) as soon as a decision is made.

11. TEACHING

Many RCUK award holders are required to undertake a certain amount of teaching. Other students may wish to undertake teaching activities, even if not required. The Department offers various teaching opportunities, principally working as lab assistants on undergraduate courses. Please contact the Department Business Manager (via computing@gold.ac.uk) for information on teaching vacancies.

12. HELP & SUPPORT

If you need help with understanding any of these processes, then get in touch with the Postgraduate Tutor, Student Services, or the Students' Union.

12.1 Student Feedback - Your Voice

As a Goldsmiths student you are automatically a member of *Goldsmiths Students' Union*, an organisation independent from the University which exists to represent and further your interests as a student. Their website is www.goldsmithssu.org. If you are interested in being a programme rep for your PhD programme then please contact l.jeczalik@gold.ac.uk or computing@gold.ac.uk

12.2 Your Academic Community

Every academic department will have an Academic Community, which will act as a platform for students to make friends, talk about their course and explore opportunities together. There will be events, trips and talks. Funding will be provided for students to come up with activity for their own cohorts.

13. COMPLAINTS

Every effort is made to ensure that all students have a positive experience during their time at the College. However, it is recognised that sometimes students may be dissatisfied with an aspect of their experience. Where this situation arises, students are entitled to make a complaint and to seek redress.

The full student complaints and appeals procedures can be found at: www.gold.ac.uk/governance/appealsandcomplaints/studentcomplaints/ or on request from the Complaints and Appeals Team; complaints@gold.ac.uk and appeals@gold.ac.uk.

The Student Complaint Procedure is also located on the VLE and can be accessed from: https://learn.gold.ac.uk/mod/page/view.php?id=527613.

14. Assessment, Results and Regulations

You can access all the information you require regarding the assessment and examinations process from: www.gold.ac.uk/students/studying/assessments/

The Goldsmiths Student Handbook on the VLE also contains information you require regarding the examinations and assessment process and can be accessed from: https://learn.gold.ac.uk/course/view.php?id=9360

It should be read in conjunction with the Assessment Regulations and Goldsmiths' College Assessment Guidance and Procedures: www.gold.ac.uk/governance/assessmentregulations/

You should refer to Attendance and Progress in the General Regulations for information related to assessment and progression at: www.gold.ac.uk/governance/generalregulations/

Students are expected to attend College on all days prescribed for their programme, unless the College is o icially closed. The College has the power to take action, including termination of registration, against students who do not attend in accordance with the General Regulations policy.

14.1 Academic Misconduct and Plagiarism

We cannot stress strongly enough how important it is to read the full regulations on academic misconduct. Not knowing that something constitutes academic misconduct is not considered to be a reasonable excuse. Therefore you need to know exactly what counts as academic misconduct.

The full assessment regulations can be accessed through the College's website, which also includes full details of the procedure for cases of academic misconduct:
https://www.gold.ac.uk/governance/assessmentregulations/

Any student in doubt about what might constitute plagiarism or any form of academic misconduct MUST seek clarification from an academic member of sta , or should seek specialist study skills assistance through the Academic Skills Centre www.gold.ac.uk/eas/.

You can access all the information you require regarding Academic Misconduct and Plagiarism from the Goldsmiths Student Handbook on the VLE:
https://learn.gold.ac.uk/course/view.php?id=9360

APPENDIX 1: FEEDBACK FORM (2018–2019)

This handbook has been written with you in mind, and we would appreciate your feedback. This will help us when we produce next year's handbooks. All information will be treated in confidence.

1. Your name (optional)

   _____

2. Your degree programme, eg, BA Anthropology, MA Screen Documentary, etc

   _____

3. Please indicate which year of study you are in by ticking the appropriate box

   1st ☐

   2nd ☐

   3rd ☐

   4th ☐

   other (please specify)

   _____

4. Are you (please tick the relevant box)

   a home/EU student ☐

   an international student? ☐

5. Are you (please tick the relevant box)

   full-time ☐

   part-time ☐

6. Please indicate how you received this handbook

   included in a departmental mailing ☐

   at departmental induction meeting at the beginning of term ☐

   at first lecture ☐

   from Personal Tutor ☐

   other (please specify)

_____

7. If you are a continuing student, did you receive a copy of last year's handbook?

yes ☐

no ☐

8. If you are a student on a joint degree programme, have you also received a handbook from your other department?

yes ☐

no ☐

9. What information did this handbook not provide which you would have found useful?

_____

_____

10. What do you think this handbook does best?

_____

_____

11. And, what do you think this handbook does least well?

_____

_____

12. Tell us how we can improve this handbook

_____

APPENDIX 2: PREPARING A PRACTICE-BASED SUBMISSION

*This appendix provides guidance **specific to ACT PhD students**.*

The submission for the PhD Arts and Computational Technology comprises the creative work together with its accompanying documentation reflecting the practice. The documentation will be primarily in written form providing an exegesis to the creative work.

The primary emphasis and focus of this degree is on the creative work. There should be an integral relationship between the creative work and documentation. The documentation, in effect, aims to demonstrate that the submission meets the criteria for the awarding of the degree. It should assist the examiners to determine whether, and in what ways the submission makes an original and significant contribution to the creative discipline(s) and/or the area(s) of inquiry within which the work is located.

Creative discipline(s) is used here to refer to the practice and conceptual base of the relevant creative form(s) such as arts and computational technology, sound based works, prose fiction and theatre/performance. Note that the creative work may span more than one creative discipline or be inter and trans disciplinary in relation to creative discipline(s), or explore new forms for which there is no established disciplinary location. Arts and Computational Technology is a relatively new field. Area of inquiry is used here to refer to the way in which the submission may constitute an investigation of an area of knowledge other than the creative discipline(s).

Put simply, the creative work discipline(s). The documentation should clarify the intention of the candidate in relation to the creative discipline(s) and the area(s) of inquiry of the submission.

The Report indicates whether, in the opinion of the examiner, the submission meets the criteria for the awarding of the degree of PhD in Arts and Computational Technology. The principal criteria are those of creative work, including devices which indicate computational creativity, and significant contribution to the creative discipline(s) and/or area(s) of inquiry. The following notes may assist examiner in preparing the Report:
The candidate's production of original creative work should be evidenced in the creative work itself, supported by the exegesis which should discuss the previous creative work in the relevant field(s) in order to demonstrate the reflection, advance and innovation in the body of work made by the creative work.
The candidate's significant contribution should be evidenced in the creative work itself and in the exegesis. In the general, the exegesis should indicate the nature of the contribution and indicate the grounds on which its significance may be inferred.
The candidate's deep understanding of the creative discipline(s) should be evidenced in the creative work itself and may be a focus of the exegesis.
Where the submission addresses area(s) of inquiry beyond the creative discipline, generally the documentation will demonstrate the nature and extent of the research involved.

The examiner is requested to report on whether the submission contains material suitable for publication. Publication is used here in the broad sense to include exhibition, performance and recordings. Frequently the creative work which forms the component of the submission is presented for examination in a public and professional context, such as a public exhibition or performance. In addition, creative work produced in the context of the candidacy, and referred to in the exegesis, is likely to have been previously published, performed or exhibited. The examiner is

not constrained by actual publication in forming an opinion about the suitability of the work for publication. Suitability represents a judgement about the worthiness of the submission (in part or in its entirety) for public promulgation, in particular directed towards professional, creative and/or scholarly audiences or readerships.

The examiner is requested to report on whether the submission achieves appropriate standards and modes of presentation. Examiners are likely to consider the creative work in relation to appropriate standards and expectations of professional practice at the highest level within the creative discipline(s) concerned. In judging the written documentation or exegesis, the examiner should report on whether it meets appropriate literary standards. Where the documentation includes material in other forms (most frequently, electronic, photographic, video, or sound recording), the examiner may report on whether the technical and aesthetic standards achieved are at the highest levels as appropriate to requirements.

APPENDIX 3: PRACTICE-BASED RESEARCH READING LIST

Commented [2]: Definitely should be a VLE page

"Practice as Research: Approaches to Creative Arts Enquiry" Estelle Barrett

"Practice as Research in the Arts: Principles, Protocols, Pedagogies, Resistances"
Robin Nelson

Art Practice as Research: Inquiry in Visual Arts Second Edition Graeme Sullivan

Candy, L. and Edmonds, E.A. Explorations in Art and Technology, Springer-Verlag, London, 2002
Candy, L and Edmonds, E. A. (editors) Interacting: Art, Research and the Creative Practitioner .Libri,Oxfordshire. 2011.

'The Artist as Researcher in a Computer Mediated Culture', in Art Practices in a Digital Culture, eds Gardiner and Gere, Ashgate Publishing, ISBN 978-0-7546-7623-2, pp. 27-42.
Janis Jefferies

'Wires and Wearables' in This Pervasive Day The Potential and Perils of Pervasive Computing, ed. Jeremy Pitt for Imperial College Press, pp 150-160, ISBN 13 978-1-84816-748-3.

'Mangling practices: Writing reflections' for JWCP 5.1 - Writing between the Disciplines at Goldsmiths, Journal of Writing in Creative Practice, Vol 5, No 1, pp 73-84, Intellect Journals 1SSN 1753-5190

TOUCH AND GO
2012 Leonardo Electronic Almanac, Vol. 18, No. 3: Touch and Go [Paperback]
Dr. Lanfranco Aceti (Author), Deniz Cem Onduygu (Designer), Lanfranco Aceti(Editor), Janis Jefferies (Editor), Irini Papadimitriou (Editor), Jonathan Munro(Editor), Ozden Sahin (Editor)
Touch and Go is published in collaboration with Watermans and Goldsmiths College in occasion of the Watermans International Festival of Digital Art, 2012, which coincides with the Olympics and Paralympics in London.

Interfaces of Performance edited by Janis Jefferies, Maria Chatzichristodoulou, Rachel Zerihan, Ashgate Publishing, 2009, 232 pages, ISBN 978-0-7546-7576-1.

The happening of the social: devices, sites and methods,
editors, Celia Lury and Nina Wakeford, London: Routledge.

Journal Articles:

Edmonds, E. A. (2011) "The art of interaction", Digital Creativity, 21:4. 257-264.
Amitani, S., & Edmonds, E. (2010) "A Method for Visualising Possible Contexts. Int Journal of Advanced Intelligence Paradigms. 2:2/3,. pp 110-124.
Edmonds, E., & Candy, L.(2010) "Relating Theory, Practice and Evaluation in Practitioner Research". Leonardo. 43:5, pp 470-476.
Edmonds, E. & Leggett, M. (2010) "How Artists Fit into the Research Processes". Leonardo 43:2, pp 194-5.
Foster, J. Lin, A. & Edmonds, E.(2010) "We Don't Do Google, We Do Massive Attacks: Notes on Creative R&D Collaborations, Leonardo 43:1, pp 94-5
Edmonds, E., Bilda, Z., & Muller, L. (2009) "Artist, evaluator and curator: three viewpoints on interactive art, evaluation and audience experience". Digital Creativity, 20:3, pp141 - 151.
Boden, M. A. and Edmonds, E. A. (2009) What is Generative Art?. Digital Creativity Vol. 20 Nos 1-2, pp 21-46
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http://www.ahrc.ac.uk/images/research_funding_guide_2007.pdf [accessed July 2007]
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Bruner, J. (1986). *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press.
Crews, F. (2006). *Follies of the Wise*, Shoemaker and Hoard. Emeryville, CA.
Gödel, K. (1931). *Über formal unentscheidbare Sätze der Principia Mathematica und verwandter Systeme*,

I. Monatshefte für Mathematik und Physik 38: 173-98. Translated in Jean van Heijenoort, 1967. From Frege to Gödel: A Source Book on Mathematical Logic. Harvard University Press: pp 596-616

Gödel's theorem: http://en.wikipedia.org/wiki/Gödel's_incompleteness_theorem
Hockey, J. Art and Design Practice-Based Research Degree Supervision. *Arts & Humanities in Higher Education*. vol 2(2) 173–185.
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Stringer, E.T (2003) *Action Research in Education*, Prentice Hal
Swartz, R., J. (ed.) (1965) *Perceiving, Sensing and Knowing*. Doubleday, New York.
UTS (2006). Doctor of Philosophy, University of Technology, Sydney. http://www.handbook.uts.edu.au/it/pg/c02029.html
Wheen, F (2004). *How Mumbo-Jumbo Conquered the World*, Harper, London.

Action Research

Action Research Electronic Reader
http://www.scu.edu.au/schools/gcm/ar/arr/arow/default.html

Stringer, E.T (2003) *Action Research in Education*, Prentice Hall

Argyris, C. R. Puttnam, R and McLain Smith, D. Action Science.
http://www.actiondesign.com/action_science/

Data Collection and Analysis Methods

Richards, L. (2005, Handling Qualitative Data, Sage, London.

Bilda, Z., Costello, B. & Amitani, S. (2006) Collaborative Analysis Framework for Evaluating Interactive Art Experience, Co-Design Special issue.

Suwa, M., Purcell, T. & Gero, J. (1998). Macroscopic Analysis of Design Processes Based on a Scheme for Coding Designers' Cognitive Actions, Design Studies, vol. 19, no. 4, pp. 455-483.

Discourse analysis

Hammersley, M. (2002), Discourse analysis: A Bibliographical Guide
http://www.cf.ac.uk/socsi/capacity/Activities/Themes/In-depth/guide.pdf

MacMillan, K. Discourse Analysis — A Primer
http://www.lboro.ac.uk/research/mmethods/resources/links/da_primer.html

Potter, J. (1996), "Discourse Analysis and Constructionist Approaches: Theoretical Background" In: John T.E. Richardson (ed.): " Handbook of qualitative research methods for psychology and the social sciences," Leicester: BPS Books.

Conversation analysis

Antaki, C. (2005) An Introduction to Conversation Analysis
Available on line at: http://www-staff.lboro.ac.uk/~ssca1/intro1.htm

Psathas, G (1994) Conversation Analysis : The Study of Talk-in-Interaction Sage, Newbury Park, London

Schegloff, E.A.
Available on line at: http://www.sscnet.ucla.edu/soc/faculty/schegloff/

Survey
On-line resource about how to conduct survey
http://www.managementhelp.org/commskls/surveys/surveys.htm

Interviews
http://www.ul.ie/~infopolis/methods/interv.html

Brief information sheets from University of Illinois Extension on 'how to do interview'
http://www.aces.uiuc.edu/~PPA/KeyInform.htm

Video Data Analysis
Candy, L, Bilda, Z., Maher, M-L. & Gero, J. (2004). Evaluating Software Support for Video Data Capture and Analysis in Collaborative Design Studies. Proceedings First International Conference on Qualitative Research in IT & IT in Qualitative Research, Brisbane, November 24-26.CD published by the Institute for Integrated and Intelligent Systems, Griffith University: http://iiis.griffith.edu.au

INTERACT User Guide (2004) Mangold Software and Consulting GmbH.

Suchman L. and Trigg R. (1991) Understanding practice: Video as a medium for reflection and design, in J. Greenbaum and M. Kyng (eds) Design at Work: Cooperative Design of Computer Systems, Erlbaum, Hillsdale, N.J.: 65-90.

Drawing process analysis
Digital Sketching Website (in progress) http://www.uoregon.edu/~arch/digsketch/

Software for Data Analysis
The need for handling large qualities of observational data has given rise to software applications that allow the researcher to collate the audio, video, text material and perform various forms of qualitative and quantitative analysis. Examples include:

NVivo where data are stored as sets of text documents, which can include field notes, interview transcripts, communications between individuals (especially email communications), and any other form of textual data. It is a text based analysis tool, which does not provide us with the synchronous analysis of audio video data. (www.qsr.com.au).

ATLAS.ti (by Scolari) is an application for the visual qualitative analysis of large bodies of textual, graphical and audio video data. The goal is to uncover complex phenomena hidden in the qualitative data. (http://www.atlasti.de/)

Observer (by Noldus) is for the collection, analysis, presentation and management of observational data. It can be used to record activities, postures, movements, positions, facial expressions, social interactions or any other aspect of human or animal behaviour. Observer could be ideal for behavioural research while analysis of textual data or handling transcripts is not central to its data capture and analysis methods. Advantage of the software is that time codes are directly acquired from video tape or media file, which allows accurate event timing (http://www.noldus.com/products/)

"HyperRESEARCH" which enables the coding of any type of source including text, audio, video and image. Software is powerful in analysing text based records and transcripts. However the multimedia capabilities of the software are not its central utility. The video recordings or captured images could be attached to text records to support heterogenous analysis. (http://www.researchware.com/).
INTERACT. (http://www.mangold.de/english/intlatest.htm)

Practice-Based Research
Bolt, B. (2006). A Non Standard Deviation: Handlability, Praxical Knowledge and Practice Led Research, Speculation and Innovation: applying practice led research in the creative industries., Queensland University of Technology. Accessed: 1/09/06. Available: http://www.speculation2005.net

Frayling, C. et al (1997). (eds.) Practice- based Doctorates in the Creative and Performing Arts and Design. N.p. [UK]: UK Council for Graduate Education.

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Biggs, M. (2003). The Role of "the Work" in Research. PARIP, University of Bristol, UK. Accessed: 5/09/06. Available: http://www.bris.ac.uk/parip/biggs.htm

Gray, C. & Malins, J. (2004). Visualizing Research: A Guide to the Research Process in Art and Design, Ashgate, Aldershot.

Reilly, L. 2002, An Alternative Model of 'Knowledge' for the Arts', Working Papers in Art and Design, vol. 2. http://www.herts.ac.uk/artdes1/research/papers/wpades/vol2/reillyfull.html

Hannula, M. (2005) (ed) Artistic Research. Theories, Methods, and Practices, ISBN 951-53-2743-1purchase at http://goart.gu.se/kf_publ/kf_publ.htm

Pakes, A., 2004, 'Art as Action or Art as Object? The Embodiment of Knowledge in Practice as Research', Working Papers in Art and Design, vol. 3. Available: http://www.herts.ac.uk/artdes1/research/papers/wpades/vol3/apfull.html

Scrivener, S. & Chapman, P., (2004).The Practical Implications of Applying a Theory of Practice Based Research: A Case Study, Working Papers in Art and Design, vol. 3. Available: http://www.herts.ac.uk/artdes1/research/papers/wpades/vol3/ssfull.html

Scrivener, S. (2002). The Art Object Does Not Embody a Form of Knowledge, Working Papers in Art and Design, http://www.herts.ac.uk/artdes1/research/papers/wpades/vol2/scrivenerfull.html

Sullivan, G. (2005). Art Practice as Research: Inquiry in the Visual Arts, Sage, California.

PBR Web links
http://www2.rgu.ac.uk/subj/ats/research/home.html
http://www.sunderland.ac.uk/~as0bgr/learnmat.html
http://www.point.ac.uk/
http://www.herts.ac.uk/artdes/research/papers/wpades/index.html

Practitioner Records
Edward Weston's Daybooks: http://art-support.com/edwardweston.htm

Klee, Paul and Jurg Spiller. Paul Klee Notebooks: Volume 1: The Thinking Eye, Volume 2: The Nature of Nature.London, 1992.

Reflective Practice
Schön, D. A. 1983, The Reflective Practitioner : How Professionals Think in Action, Basic Books, New York.

Cowan, J. 1998, On Becoming an Innovative University Teacher: Reflection in Action., SRHE & Open University Press, London.

Holmes, A. 2006, 'Reconciling Experimentum and Experientia: Ontology for Reflective Practice Research in New Media', Speculation and Innovation: applying practice led research in the creative industries., Queensland University of Technology. Accessed: 1/09/06. Available: http://www.speculation2005.net

Usability

Harker, S. (1995). The Development of Ergonomic Standards for Software, Applied Ergonomics, 26,(4), pp275-279.

Thomas, C. and Bevan, N. (1995). Usability Context Analysis: A Practical Guide and Performance Measurement Handbook EC Project Versions. National Physical Laboratory, Teddington, Crown Copyright.

Other Useful References

Costello, B., Muller, L., Amitani, S. & Edmonds, E. (2005). Understanding the Experience of Interactive Art: Iamascope in Beta_Space, Interactive Entertainment 2005, Creativity & Cognition Studios Press, University of Technology Sydney, Australia, pp. 49-56.

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Throop, J. C., (2003). Articulating Experience, Anthropological Theory, vol. 3, no. 2, pp. 219-241.

Zeisel, J. (1981) Inquiry by Design : Tools for Environment-Behavior Research, Brooks/Cole Pub. Co., Monterey, Calif.

Advice to PhD Students

http://www.uow.edu.au/research/rsc/hdrhb/PhDNotNobelPrize.pdf
It's a PhD, not a Nobel Prize - the most difficult thing is to get to grips with is how un-amazing your PhD can be. This article presents the results of a study of experienced examiners' attitudes.
http://www.phinished.org/
Peer support for finishing a PhD. Might strike some as a bit too community/US-centric.
http://www.insidehighered.com/workplace/2005/11/30/tips
What They Don't Teach You in Graduate School
http://polaris.gseis.ucla.edu/pagre/network.html:
Networking on the Network: A Guide to Professional Skills for PhD Students - long article, but focuses on the things you should be doing other than writing a thesis.

APPENDIX 4: APPLICATION FOR REIMBURSEMENT/PAYMENT OF RESEARCH EXPENSES

Please complete this form if you intend to go to a seminar, conference, etc. and you require reimbursement from the Departmental budgets. You MUST submit this well in advance of registering for any conferences/seminars or workshops. Research students must also attach a supporting statement from their supervisor. If you are presenting a paper, it is important that your paper is uploaded to GRO (http://research.gold.ac.uk/) within **three months** of acceptance.

1. Student Name: **Supervisor Name:**

2. Reason for application (e.g. conference expenses, travel or subsistence, equipment or training):

3. If you are presenting a paper please state title and joint authors:

4. Is the paper eligible for REF? (Consult your supervisor)

5. Estimated Costs: (please state all the costs you wish the department to pay broken down appropriately eg fees, travel subsistence together with the total:

6. Source: (please state whether you wish the costs to be paid from Departmental budgets or the money from subject guides or any other alternative)

7. If you have applied for funding from other sources, please give details:

8. Are you organising a workshop?

Signed (student): _____ **Signed (Supervisor):** _____

Date: _____ **Date:** _____

Commented [3]: I changed this to include supervisor and REF-returnable questions. I'll circulate a copy to update the form if it's anywhere else.

APPENDIX 5: SUPERVISION RECORD TEMPLATE

SUPERVISION RECORD (MPhil/PhD)

This form is available via your student profile on the Department's intranet and is to be completed by the supervisor and student at the end of each supervision. A copy will be automatically retained on the intranet.

Name of Student:
Supervisor:
Date of Supervision:

Topics of meeting (studio practice, text previously submitted, other – please specify):

Issues discussed during the meeting:

Action agreed for next supervision:

Date of next supervision (if more than two months from now, briefly explain):

Signature of Student:

Signature of Supervisor(s):

This handbook is for students on Mphil/PhD Art and Computational Technology and Computer Science programmes in the Department of Computing.

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