AALBORG UNIVERSITET

Art & Technology 2019

Semesterguide 5. Semester

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Narratives & Interaction

Semester details

Study board: ArT & Technology

Study regulations: BA Study Program in Art & Technology, The Faculty of Humanities, AAU, September 2019:
https://studieordninger.aau.dk/preview?path=/admin/collection/1128/visualizationeducation/87/en-GB/True&ui=en-GB

Semester framework theme

The module introduces the production and creation of narrative artefacts and narrative universes with special emphasis on the integration of interactive narratives and physical stages. The module is supported by theoretical and practical courses and seminars within concept development of narrative installations of various kinds, video editing, scripting, and possibly special ad hoc activities evolving from the production processes of the students. Furthermore, the module seeks to establish collaborative processes and projects with external partners.

Courses
In connection with the module, the following courses will be offered:

- Narratives and Interaction
- Artistic and Academic Methodology V

Other courses may be offered within the following areas:
- Dramaturgy
- Manuscript
- Video Editing

Semester organisation and time schedule

The semester is organized around a collaborative performance project: the development of an intermedia performance in collaboration with Southgate School for Creative Writing and Trekanten Kulturhus in Aalborg Øst (www.trekanten.info). ArT students will work with Creative Writing students from SGS to adapt a short story for live performance. The groups will be organized according to production roles, and will work together to develop a cohesive, unified performance project based on E.M. Forster's novella *The Machine*. Trekanten is a co-producing partner, and students will work with the organization to promote and curate the live performance.

Important Dates

Week 36 & 38 - Joint Writing/Manuscript Workshop with Southgate School for Creative Writing (Required Participation, See *Manuscript*):

September 5th & 6th: 10:15-14:30h (CREATE)

September 19 & 20th: 10:15-14:30h (Trekanten)

September 18th (Wednesday) Life Performance: OW Bunker At Teater Norkraft (Required)

September 20th – Immersive Theatre Field Trip to Arhus: Signa's *Åbne Heart* (Optional)

Week 43: October 21 - Joint Semester Seminar (Required Participation)

Week 45: Nov 6-8 - Works-In-Progress & Feedback session (See MRT Mixed Realities) w. E. Edmonds & L. Candy (Required Participation details TBA)

Week 47: Production Week at Trekanten (Required Participation)

Dates and times of performance will be determined by Production Team, but most likely:

Nov 18 - Load-In
Nov 19 - Nov 20 Technical Rehearsals
Nov 21 - Teacher Walk Through (Preview Performance/Dress Rehearsal)
Nov 22-24 - Public Performances
Nov 25 - Load-Out

Report Guidelines
Please use the following template to format your Semester Report.

ABSTRACT

A short paragraph summarizing the main aspects of the investigation---context, problem, results, and insights.

INTRODUCTION

This is where you set the context for your work. What is the big picture? What is the motivation for investigating this area?

PROBLEM STATEMENT

Here you concisely state the problem that you are investigating. You may also present a hypothesis to be supported or rejected through your own experiments.

BACKGROUND (STATE-OF-THE-ART)

Present the state-of-the-art of the given topic/area you are investigating (e.g. Intermedia Performance, Mixed-Reality Performance, Post-Dramatic Theatre, Robotic Art, etc). This grounding is important when conducting any type of research, as it demonstrates your knowledge of the field and helps locate your contribution within that field. Clearly identify significant theoretical frameworks and significant art works/performances and how they relate to your research area. Always reference refutable sources (i.e., peer-reviewed journals, books, etc.) and, when possible, primary sources (i.e., the original author of the work).

DESIGN METHODS

What specific academic and artistic methods are you employing in your study? How will you test your hypotheses, or carry out the research aspects of your project? Identify at least 3 methods (1 artistic, 2 academic) that will form the backbone of your investigation.

IMPLEMENTATION

How was the final work developed and constructed? Include overall system diagrams, floorplans, scenic designs, renderings, illustrations and other supporting evidence of the exhibition. Detail the most important aspects of the implementation and place the rest in the appendix. (For ArT 5, a completed manuscript/playtext should be included in the Appendix). Ideally, a reader should be able to re-create your artwork/performance based on the information in this section.

ANALYSIS

Was your work successful? Support this with qualified analysis using the academic and artistic methods you outline in DESIGN METHODS section. If you made an initial hypothesis, do your observations support or reject it? What were the strengths and limitations of this study/project? Were there results that were inconclusive? What might account for that?

How well did your project help you to realize learning objectives of the Project Module? (It is a good idea to review these). *Where possible, link the outcomes of your project to specific knowledge, skills and competencies outlined in the main project module*.

COLLABORATION

Each group member should provide individual descriptions and self-evaluations of their individual contribution to the production team, and reflect on the collaboration with the external partners. One or two paragraphs per student (should be written in the first person).

FUTURE WORK

If given the opportunity, how would you expand on this work? What new research directions or avenues of exploration have opened up as a result of your project? Is there anything you could have done better? If you were to develop this project further, what would you work on next?

CONCLUSION

This is where you reflect on the your efforts, and connect back to the broader field of Art and Technology. It is not merely a summary of what you did. Rather, you should succinctly connect all the dots and synthesize new insights here. What can others learn from your work?

REFERENCE LIST

List of references following the APA referencing style. https://www.apastyle.org

Please ensure your report follows APA guidelines for citation and formatting.

APPENDIX

Please include short project video with ArT Title Slide.

Semester coordinator and secretary assistance

Semester coordinator: Elizabeth Ann Jochum

Secretariat assistance: Elsebeth Bækgaard

Module description (description of each module)

Module title, ECTS credits

Narratives and Interaction (M15)
15 ECTS

Location

5. Semester

Module coordinator

Elizabeth Jochum

Type/Method and language

Project work in groups
English

Learning objectives:

The objective of the Module: "Narratives and Interaction" is to introduce the students to problem areas and solutions in relation to the creation of artefacts and projects, in which different forms of structuring of narrative information plays a major role, i.e. interactive storytelling, collaborative narrative projects, hypertexts etc. The module comprises of theoretical and practical courses and seminars within narrativity, (interactive) dramaturgy, understanding and creation of fictional universes, writing of manuscripts and storyboards.

During this module, students should acquire:

Basic **knowledge** about

• central theories within narrativity with special focus on narratives in interactive settings
• methods for the creation of narrative installations
• central theories within (inter/re-active) dramaturgy and performance design
• theories and methods of combining physical and digitally enhanced spaces
• artistic and technological strategies within performance design and performative events
• manuscripts and storyboards as central creation methods of narrative media installations
• artistic and academic methods of collaborations with external partners.

Skills in

• identifying and formulating an artistic problem and/or theme within the field "Narratives and Interaction" and
developing different artistic concepts and solutions for a chosen problem/theme
• transforming basic knowledge and theories of narrativity and media technology into artistic concepts
• identifying dramaturgical challenges within interactive fiction and performance
• applying and implementing (interactive) dramaturgical models that combine physical and digitally enhanced spaces
• applying technological solutions in regard to interactive narratives and performance design

Competencies in

• conceiving ideas and developing concepts of (interactive) narrative artefacts that combine physical and digital means of expression
• analyzing and constructing narrative artefacts and events that merge virtual and material spaces
• employing a number of digital performance technologies
• analyzing and creating manuscripts and storyboards in regard to inter-/reactive story telling
• contextualizing own artistic solutions (to state-of-art, socio-cultural requisites and consequences, art theoretical and aesthetic dimensions, etc.)
• describing, analyzing, and documenting artistic design solutions on a professional level, and communicating this to external collaborative partners.

Academic content

The module introduces the production and creation of narrative artefacts and narrative universes with special emphasis on the integration of interactive narratives and physical stages. The module is supported by theoretical and practical courses and seminars within concept development of narratives installations of various kinds, video editing, scripting, and possibly special ad hoc activities evolving from the production processes of the students. Furthermore, the module seeks to establish collaborative processes and projects with external partners.

Scope and expected performance

15 ECTS credits. 1 ECTS credit = 27,5 hours of work. 20 ECTS = 412,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The semester theme is Intermedia Performance. Students will collaborate with ArT students will work with Creative Writing students from SGS to adapt a short story for live performance. The groups will be organized according to production roles, and will work together to develop a cohesive, unified performance project based on E.M. Forster's novella *The Machine Stops*.

The live performance will be presented for the public in Trekanten Kulturhus theatre during Week 47. At the beginning of the semester, students will be grouped into a production company. Each student is assigned to a team that is responsible for coordinating a technical aspect of the production (such as lighting, scenery, costumes, sound design, public relations, or producing/fundraising). This exposure provides students with the opportunity to gain experience in areas that might be new to them while also developing skills necessary for collaboration - skills essential for future work in the creative industries and applicable to the broader professional world.

Active participation in the development, production team, group work, and performances is required for successful completion of the semester.

Course: Narratives, Dramaturgy, and Media I (M15)

Course Sessions:

Lesson 1: Introduction to Performance & Media (Lecture)

Instructor: E. Jochum

This course introduces students to the narrative for the semester project, and provides a general introduction to theories of performance and its relevance for contemporary art and technology practice.

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
The Machine Stops (E.M. Forster)	37		yes
Performance (M. Carlson) Ch 3	30		yes
The Narrative Imagination (Nussbaum) Introduction	20		yes

Lesson 2: Narratives & Interactive Dramaturgy (Lecture)

Instructor: E. Jochum

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Routledge Companion to Dramaturgy (Romanska)	25		yes
On Interactive Storytelling (Crawford) Ch 3	20		yes
Cambridge Intro to Theatre Studies (Balme) Ch 12	40		yes

Lesson 3. Participatory & Immersive Performance (Lecture)

Instructor: E. Jochum

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Audience Agency in Participatory Performance	20		yes
On Being Immersed: The Pleasure of Being (Machon)	13		yes
Reframing Immersive Theatre (Frieze)		25	yes

Lesson 4. Post-Dramatic Theatre (Lecture)

Instructor: E. Jochum

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Post Dramatic Theatre (Lehmann)	53		yes
Transformative Power of Performance (Fischer-Lichte)		37	yes

Lesson 5: Performance Art & Non-Human Performance (Lecture)

Instructor: E. Jochum

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Robots & Anthrop. in Science-Fiction Theatre (Reilly)	25		yes
Live Art in Art History (Jones)	20		yes

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Lesson 6: Live Performance & Discussion

Instructor: E. Jochum

Students will attend a live performance at Teater Nordkraft and post-performance discussion, moderated by the instructor and artists from the company.

Lessons 7 + 8 +9 : Designing for the Theatre (Workshop)

Instructor: E. Jochum with Mia Willett Guest Instructor from Aalborg Teater on Lighting & Scenic Design

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Cambridge Introduction to Theatre Studies (Ch 3) Spaces &	20		yes
The Essential Theater (Ch 15) Scene/ Lighting Design	20		yes

Lesson 10: Performance & New Media (Lecture)

Instructor: E. Jochum

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Performance and New Media (Saltz)	40		yes
Entangled (Chris Salter)	40		yes
Digital Performance (Steve Dixon)		30	yes

Course: Manuscript (M15)

Lesson 1: Basics of Dramatic Writing

Instructor: E. Jochum + L.K. Christensen (SGS)

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
The Machine Stops (Forster)	37		yes
Playwriting (Smiley, S &Bent, N)	40		yes
Poetics (Aristotle)	40		yes

Lesson 2: Experiments in Dialogue & Structure (Workshop)

Instructor: E. Jochum + L.K. Christensen (SGS)

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
The Machine Stops (Forster)	37		yes
Playwriting (Smiley, S & Bent, N) (pdf)	40		yes

Lessons 3 + 4. Manuscript & Scoring For Devised Theatre (Workshop)

Instructor: E. Jochum + L.K. Christensen (SGS)

Over the course of the workshop students will work together with Creative Writing students from SGS to adapt and develop the script, which will form the basis of the live performance for the semester project and Main Project Module. All students will be involved in the co-authoring of the dramatic text.

Course: Video Editing (M15)

Course sessions

Lesson 1: Camera and Film Lighting Lessons I (Lecture)

Lecturer: Thomas Busk

This course introduces students to the basic of the digital camera, and covers topics such as settings, cameraset-up, exposure,etc. Students will work in groups to document their art projects, from design to completion, and produce a 3 minute video. It is strongly recommended that students use the projects in the Multimedia Programming Elective: Robotic Art for their Video Editing project.

	Pri. lit. no ofp.	Sec.lit. no ofp.	Dig. upload
Adobe handout – course pack	25		yes

Lesson 2: Camera and Film Lighting Lesson - II (Workshop)

Lecturer: Thomas Busk

This hands-on workshop teaches the fundamentals of film lighting. Students will apply these principles in work on their video documentation projects.

Lesson 3 + 4: Fundamentals of Editing: Parts 1 and 2 (Workshop)

Lecturer: Thomas Busk

This hands-on workshop provides students with an overview of editing principles and features of Adobe Premiere, the timeline-based video editing application. The course also introduces important concepts in film editing, such as editing patterns, coherence, continuity, transitions, montage, and music.

Course: Artistic & Academic Methodologies: Participatory Methods (M15)

Course sessions

Lesson 1: Performing Perception Practice (Lecture + Workshop)

Lecturer: Sandro Masai

This lecture introduces techniques for improvisation and choreography in modern dance and physical theatre. The students will practice the concept of 'thinking through the body', physically working with the dynamics of presence and movement, while reflecting upon the performer-audience interaction.

Practical exercises, group discussions and the use of video in qualitative research.

	Pri. lit. no ofp.	Sec. lit. no ofp.	Dig. upload
Dalsgaard, P. and Hansen, L. K. (2008). Performing Perception – Staging Aesthetics of Interaction. University of Aarhus.	33		Yes
Heath, C., Hindmarsh, J. and Luff, P. *Video In Qualitative Research – Analysing Social Interaction in Everyday Life (2010). Sage Publications Ltd.*	23		Yes

Lesson 2: Performing Perception Practice – Part 2 (Lecture + Workshop)

Lecturer: Sandro Masai

This lecture introduces techniques for improvisation and choreography in modern dance and physical theatre. The students will practice the concept of 'thinking through the body', physically working with the dynamics of presence and movement, while reflecting upon the performer-audience interaction.

Practical exercises, group discussions and the use of video in qualitative research.

	Pri. lit. no ofp.	Sec. lit. no of p.	Dig. upload

Dalsgaard, P. and Hansen, L. K. (2008). Performing Perception – Staging Aesthetics of Interaction. University of Aarhus.	33		Yes
Heath, C., Hindmarsh, J. and Luff, P. *Video In Qualitative Research – Analysing Social Interaction in Everyday Life (2010). Sage Publications Ltd.*	23		Yes

Lesson 3: Performance Design – Devised and Performed – Part 1 (Lecture + Workshop)
Lecturer: Sandro Masai

Design Methods applied to Performance Art. "What? (strategy) Why? (vision) How? (tactics)"
Practical exercises (project communication within the groups and external partners – moodboards, sketches and graphics) and group discussions

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
David Benyon (2014). *Designing Interactive Systems – A Comprehensive Guideto HCI, UX and Interaction Design.* Harlow, UK: Pearson	5		Yes
Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., Wensveen, S., (2011). *Design Research Through Practice: From the Lab, Field and Showroom.* Waltham, MA, USA: Morgan Kaufmann.	whole book		Yes

Lesson 4: Performance Design – Devised and Performed – Part 2 (Lecture + Workshop)
Lecturer: Sandro Masai

Design Methods applied to Performance Art.: "What? (strategy) Why? (vision) How? (tactics)"
Practical exercises (project communication within the groups and external partners – moodboards, sketches and graphics) and group discussions

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
David Benyon (2014). *Designing Interactive Systems – A Comprehensive Guideto HCI, UX and Interaction Design.* Harlow, UK: Pearson	5		Yes
Koskinen, I., Zimmerman, J., Binder, T., Redstrom, J., Wensveen, S., (2011). *Design Research Through Practice: From the Lab, Field and Showroom.* Waltham, MA, USA: Morgan Kaufmann.	whole book		Yes

Examination

Oral exam based on a project
The examination will take the form of a conversation between the student, the examiner and another internal
examiner on the basis of the project report prepared by the student(s), which may be in the form of a report or portfolio as well as the product created by the student. The project exam will also address other content from the module courses.

Form of examination: b)

Number of pages: the written work must not exceed 10 pages per student (15 pages in the case of individual
reports).

Duration of examination: 20 minutes per student and 10 minutes for assessment and communication of grades per group, however, the duration of the examination is maximum 2 hours.

The assessment is made of the individual student based on the learning objective. The assessment must also be based on an overall evaluation of the project report, the presentation, the joint discussion and the
individually oriented questions. In order for the examinee to pass the exam, all these aspects must be
satisfactory. The project report is thus part of the overall basis for the assessment, and is not given an independent grade.

Criteria:
The written report, the product and the oral examination should demonstrate that the student has fulfilled the
objectives outlined above.

Module description (description of each module)

Module title, ECTS credits

Mixed Reality (MR) Technologies
5 ECTS

Location

5. Semester

Module coordinator

Tony Brooks

Type/Method and language

Individual or small groups
English

LEARNING OBJECTIVES

During this module, students should acquire:

Basic knowledge about
• theories and methods used towards the creation of mixed reality systems
• mapping between real- and virtual-world environments
• methods for evaluating experiences and presence in different environments
• design of mixed reality environments

Skills in
• applying methods for development of augmented, mixed and virtual environment
• applying methods for tracking of objects
• applying methods for analysis and recognition of human motion
• analyzing mappings between real, augmented, mixed or virtual reality environments
• analyzing user experiences and presence in augmented, mixed or virtual reality environments.

Competencies in
• analyzing and constructing augmented, mixed and virtual environments
• analyzing and constructing motion capture systems
• analyzing and constructing systems that map information between real, augmented, mixed or virtual reality environments.

Academic content

The goal of this module is to introduce the students to theories and methods of mixed reality technologies in relation to the creation of interactive or re-active narratives and performances that merge virtual and material spaces. The module is comprised of theoretical and practical courses and seminars that concern use of technolo for construction of performative environments and/or installations.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of preparation course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The framework of this course will be an opening two lectures as introduction to the field followed by seven lectures specific to applied tech (e.g. Unity, etc.) in creating a MR technical outcome. A final summing u 'lecture' will focus on presentations by individuals of their MR creations. Students by completion of the course required to design and create a Mixed Reality as presented in Lecture 3. Literature and other lecture content wi together exemplify luminaries, milestones, developments, techniques, etc. Application and analysis are also co learning goals.

Tony Brooks (2.5 lectures) / Jens Stokholm Høngaard (7.5 lectures)

Lesson 1 + 2: Mixed Reality (MR) Lessons 1 and 2
Lecture/Workshop

Lecturer: Tony Brooks

Lectures 1 and 2 will introduce the field, its history, selected players, and associated. The introduction provides grounding and a literature foundation for the course for students to explore. Considerations for different encountered scenarios are discussed. Various baseline techniques are introduced.

These lectures will include student priming for researching the guests Ernest Edmonds and Linda Candy towar their 6-8 November visit in order for maximising benefit from their input relating their works to MR course co (see literature as listed and others available Online).

Literature (Double lecture 1 + 2)

	Pri. lit. no of p.	**Sec. lit. no of p.**	**D upl**
A taxonomy of mixed reality visual displays P Milgram, F Kishino (1994) IEICE TRANSACTIONS on Information and Systems 77 (12), 1321-1329	9		
Dick Higgins 'intermedia' **(1966)** http://www.primaryinformation.org/oldsite/SEP/Something-Else-Press_Newsletter_V1N1.pdf		3	
Being Really Virtual pp 155-163 The Coming Age of Next Realities In: Being Really Virtual. Springer, Cham https://link-springer-com.zorac.aub.aau.dk/chapter/10.1007/978-3-319-43078-2_10		8	
Giannachi, Lowood, Worthey, Price, Rowland and Benford - Documenting mixed reality performance: the case of CloudPad, Digital Creativity 2012, 1–17, ISSN 1462-6268		17	
Myron Krueger Responsive Environments http://raley.english.ucsb.edu/wp-content/Engl800/Krueger-AFIPS.pdf		pp.423-433 (11 pages)	
Virtual Reality and Performance - Scott de Lahunta PAJ: A Journal of Performance and Art, Vol. 24, No. 1, Intelligent Stages: Digital Art and Performance (Jan., 2002), pp. 105-114 http://www.jstor.org/stable/3246463	pp. 105-114 (10 pages)		
A Survey of Augmented Reality Technologies, Applications and Limitations D.W.F. van Krevelen and R. Poelman The International Journal of Virtual Reality, 2010, 9(2):1-20		1-20 (20 pages)	
A Survey of Evaluation Techniques Used in Augmented Reality Studies (2008) Andreas Dünser, Raphaël Grasset, Mark Billinghurst https://pdfs.semanticscholar.org/7661/947c401eda2b4f73c10a46defbbd620e107d.pdf		(np) 27	
Plus in-class materials			

Lesson 3 + 4: Introduction to Mixed Reality
Workshop
Lecturer: Jens Stokholm Høngaard
Introduction to what technologies that is available to the students. This includes an introduction to Unity as tha needed in order to use some of the underlying technologies.

This lesson covers the use of Unity and programming this will take a basis on some of the tutorials provided by Unity https://learn.unity.com/tutorials

A main assignment is for individual students to design and create a Mixed Reality ArT artefact to present in fir session [Lesson 10]. Assignment is presented during Lesson 3.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Unity Basics https://learn.unity.com/course/unity-basics			
Unity Beginner Scripting https://learn.unity.com/project/beginner-gameplay-scripting			

Lesson 5 + 6: Intro to Virtual Reality
Workshop
Lecturer: Jens Stokholm Høngaard
This workshop is a part intro to what Virtual Reality is and what it can be used to in a performance. This will include some intro examples of use and demonstrations of tracking of objects. It continues the Unity from lesso and 4. With adding XR from unity to learn how Virtual Reality is use in modern Applications.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 7 + 8: Intro to Augmented Reality and Projection mapping
Workshop
Lecturer: Jens Stokholm Høngaard
The workshop is on Augmented reality and Projection mapping. This workshop is going to be similar to the workshop on Virtual Reality. This continues the XR with focus on augmented reality and is exploring projectio mapping and how it is used in modern applications.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 9: Open Workshop
Workshop
Lecturer: Jens Stokholm Høngaard

This workshop is to help students in making their mini project, there will be no new information on this worksh is purely to help on any questions on the mini project.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 10: MR presentations of student mini-project deliverables

Lecture/Workshop: Students present their mini-projects for assessment/feedback summing up and conclusion o course.

Lecturer: Tony Brooks + Jens Stokholm Høngaard

Extra (full details to follow): Students have opportunity to attend a presentation lecture, performance and panel debate (*all tbc*) by ArtsIT/DLI international conferences delegates, guest professors/international artists – detai follow as applicable. Students should research the guests from their online links and bodies of work (e.g. see be plus extra which will be given in lecture 1+2.

- The Art of Interaction: What HCI Can Learn from Interactive Art
  Ernest Edmonds, ISBN: 9781608458981 | PDF ISBN: 9781608458998

- Candy, L. and Edmonds, E.A. (2018). Practice-Based Research in the Creative Arts: Foundations and Futures from the Front Line, Leonardo, Volume 51, Issue 1, February, pp 63-69.

- Interactive Experience in the Digital Age: Evaluating New Art Practice
  Editors: Candy, Linda, Ferguson, Sam (Eds.) https://www.springer.com/gp/book/9783319045092

- Candy, L. Edmonds, E. A. and Poltroniei, F. (2018) Explorations in Art and Technology, Springer-Verl London pp. 3-29 “History”

- Candy, L. (2012) Evaluating Creativity, in Carroll, J. M.(ed). Creativity and Rationale: Enhancing Hum Experience By Design, Springer.

Additional Reading:

- Jason Jerald - The VR Book: Human-Centered Design for Virtual Reality, Morgan & Claypool Publish ©2015 ISBN:1970001151 9781970001150

- Being Inside the Image. Heightening the Sense of Presence in a Video Captured Environment through Artistic Means: The Case of CREW. (2008) Presence 2008, pp. 157-

- Mixed Reality and the Theatre of the Future: Fresh Perspectives on Arts and New Technologies by Jori Weijdom https://www.ietm.org/en/system/files/publications/ietm_fp_mixed-reality_march2017_1.pdf

Examination

Active participation/continuous evaluation
Active participation in the module's series of lectures and other course related activities is required. Active participation is defined as reading of set literature, 80 % attendance of the module's series of lectures and other course related activities, contribution to the module's discussion sessions through presentations and active participation in discussions as well as hand in of all assignments.

Re-exam:
Form of examination: c)
Written exam.
Number of pages: the written work must not exceed 10 pages.
In case of a Fail grade, also a second examiner will evaluate the assignment.

Module description (description of each module)

Module title, ECTS credits

Art-Based Research
5 ECTS

Location

5. Semester

Module coordinator

Falk Heinrich

Type/Method and language

Individual or smaller groups in relation to course activities
English

Learning objectives:
During this module, students should acquire:

Basic knowledge about
• selected theories and methods of arts-based research
• quantitative and qualitative methods in arts-based research
• the historic and epistemological dimensions of arts-based research
• formats of knowledge dissemination for arts based research findings
• evaluation criteria for arts-based research projects
• planning, curating and realizing an arts-based research project or exhibition.

Skills in
• conceptualize and formulate a relevant arts-based research problem or field of investigation
• creating concepts for artistic research experiments
• applying evaluation criteria as part of arts-based research

• employing methods of practical planning, realization, and evaluation of arts-based research projects.

Competencies in
• developing a research design
• developing and realizing arts-based research projects in the field of art and technology
• planning and realizing an arts-based research project.

Academic content

The module "Art-Based Research" focuses on the meeting between artistic experimental practices and academic,analytical methods. The module focuses on the interrelation between theoretical and practical approaches. Arts-based research takes the form of projects based on a set or self-chosen problem formulation or problem field. The projects investigate this interrelation by means of artistic artefacts (e.g. installations, exhibitions, performances, events, etc.) and academic methods such as the production and analysis of empirical data. The module introduces theories related to arts-based research, combined with the practical planning and realization of arts-based research projects.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The module/course contains four lectures given by the module responsible (Falk Heinrich) and four workshops led by artist Inga Gerner Nielsen and two seminars led by Falk Heinrich and Inga G. Nielsen. The four lectures introduce and discuss art-based research as a specific yet fairly open research approach. The workshop will form part of the educational course entitled *Den Interaktive Performers Talentudvikling* led by performer Inga Gerner Nielsen and funded by KulturKanten Nordjylland. The workshops introduce and exercise techniques of the interactive performer. From the outset, an interactive performer is not an actor, the performer does not play a role, but facilitates a conceptually framed meeting between the participants and the performer. The methodical focal point of the workshops is the transformation of the interview (as an academic method) into an artistic performative technique.
The students must come prepared meaning they must have read the mandatory texts for the lectures and produced, described, executed and evaluated their research design depending on the assignments given for each lecture and workshop.
Based on the lectures and workshop, the students (working in groups) have develop an art-based research project that applies artistic approaches and artefacts as a means to gain knowledge about a specific issue. The projects need to apply performative methods and events in different domains. The students can choose between different research functions in the workshops: performer, participating observer, external observer. The module requires the design and realization of an art-based research project. The general framing of it is as follows:

- All students must participate in all the workshops given by Inga Gerner Nielsen
- Students form groups (no less than four persons per group)
- The research project must be based on the theory behind art-based research, must incorporate elements of the workshops given and must have the form of an interactive performance event.

- The research project must be based on an artistic problem statement. It must follow a costume-made research protocol and must analyze and present its findings.
- The groups can choose their own thematic focus of their project within the framework stated above

The details (e.g., locations) will be presented at beginning of the semester.
The module will be assessed through an external oral examination on the basis of an art-based research project including a report/paper (no more than 10 pages per group). (See examination requirements)

Course: Art Based Research (M17)

Course Sessions

Lesson 1: What is arts-based research? (Lecture)

The lecture will present and discuss various theoretical approaches to arts-based research.

Lecturer: Falk Heinrich

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
McNiff, Shawn (2008) "Art-Based Research" In Knowles, J.G. & Cole, A.L., *Handbook of the arts in qualitative research: perspectives, methodologies,examples, and issues*. London: Sage. P. 29-40 http://methods.sagepub.com/book/handbook-of-the-arts-in-qualitative-research	11		
Borgsdorff, H. 2010. "The Production of Knowledge in Artistic Research" in Biggs, M. and Karlsson, H. (ed) *The Routledge Companion to Research in the Arts*. London, New York: Routledge.			20
Candy, L. and Edmonds, E., 2010. "The Role of the Artefact and Framework for Practice-Based Research" in Biggs, M. and Karlsson, H. (ed) *The Routledge Companion to Research in the Arts*. London, New York: Routledge.			18

Lesson 2: Why arts-based research? (Lecture)

Lecturer: Falk Heinrich

The lecture will present and discuss the epistemological and institutional contexts for arts-based research.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Sullivan, Graeme (2010). *Art Practice as Research - Inquiry in Visual Arts*. Ch 2 & 4	60		26

Lesson 3: Immersive Performance Strategies (Workshop)

Workshop 1 presents the idea behind the concept of the interactive performer (art form, aims, tasks) and introduces to the practical work through simple exercises dealing with immersion.

Lecturer(s): Inga Gerner Nielsen

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 4: The Performer's Body (Workshop)
Lecturer: Inga Gerner Nielsen
Workshop 2 consists of exercises that prepares the performer for his or her task to establish an interactive situation and secure relation to a participant.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 5: How to Conduct Arts-Based Research (Lecture)
Lecturer: Falk Heinrich

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Leavy, P., 2009. *Methods meets Art*. New York, London: The Guilford Press. Chap 2.			36
Leavy, P., 2009. *Methods meets Art*. New York, London: The Guilford Press. Chap 5.	42		
Springgay, S.; Irwin, R. L. & Kind, S. (2012) "A/R/Tographers and Living Inquiry" In: J. Gary Knowles & Ardra L. Cole (eds) H*andbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues*. Thousand Oaks: Sage			9

Lesson 6: The Interview as Performance (Workshop)
Lecturer: Inga Gerner Nielsen
Workshop 3 deals with the application and transformation of interview techniques to be an artistic means in a performance.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Nielsen (forthcoming), "The Interview as Convergent Point between Qualitative Research and Art". Aarhus: Peripeti			

Lesson 7: Evaluating and reflecting arts-based research (Lecture)
Lecturer: Falk Heinrich
The lecture will present and discuss types and modi of arts-based research findings and its notion(s) of knowledge.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Biggs; Karlson (2011) "Evaluating Quality in Artistic Research" in Biggs; Karlson (eds) *Routledge Companion to Research in the Arts.* Routledge: London, New York			22

Lesson 8: The dramaturgy of an interactive performance (Workshop)
Lecturer: Inga Gerner Nielsen
Workshop 4 presents, exercises and discusses dramaturgical strategies that are able to structure a interactive performance and art-based (performance-based) research project.

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload

Lesson 9: Performance as art-based research (Seminar)
Lecturer: Falk Heinrich/Inga Gerner Nielsen
Lesson 9 and 10 are seminars where the students present and discuss with the course deliverables their art-based research problem statement, their research designs and methods, their theoretical bearing and their expected outcomes.

Lesson 10: Performance as art-based research (Seminar)
Lecturer: Inga Gerner Nielsen
Lesson 9 and 10 are seminars where the students present and discuss with the course deliverables their art-based research problem statement, their research designs and methods, their theoretical bearing and their expected outcomes.

Examination

Oral exam
Form of examination: a)

Oral group-based exam.

Duration of oral exam: 20 min per student including grading and assessment. Max 1 hour per group.

Evaluation: Graded.
Credits: 5 ECTS

The examination should demonstrate that the student has fulfilled the objectives outlined above.

Module description (description of each module)

Module title, ECTS credits

Multimedia Programming (Elective) (M18)
5 ECTS

Location

5. Semester

Module coordinator

Markus Löchtefeld

Type/Method and language

Individual or small groups
English

Learning objectives:
During this module, students should acquire:

Basic knowledge about
• advanced topics of software development and algorithms relevant to the design and implementation of multimedia software applications (these can include software design patterns, programming mobile devices and embedded systems, robots and robotic motion, network programming, and machine learning).

Skills in
• applying a variety of intermediate and advanced programming techniques and methods in the construction of effective and efficient multimedia software applications
• applying advanced programming techniques in combination with artistic and perceptual theories.

Competencies in
• analyzing multimedia engineering problems and select, apply and evaluate appropriate technologies in developing successful solutions
• applying quantitative analysis to evaluate multimedia solutions
• applying advanced concepts in multimedia programming and software engineering.

Academic content

The goal of this module is to strengthen the student's capacity to develop advanced multimedia applications. Based on a significant amount of prior knowledge of programming, the module will advance the students capabilities to develop software and physical systems through more complex algorithms and programming techniques.

Scope and expected performance

5 ECTS credits. 1 ECTS credit = 27,5 hours of work. 5 ECTS = 137,5 hours of work consisting of preparation for course sessions, course participation, group work, exercises, counselling and exams.

Module activities (course sessions etc.)

The aim of this course is to introduce students to the theoretical and practical dimensions of robotic art. The course places equal emphasis on aesthetic and technical concerns so students may develop competencies in the creation of an aesthetically engaging robotic art works. Students learn how to design, program and execute a computer-controlled work of art using models such as random walks and Markov chains and Flocking. Students also confront issues in planning, coordination, and control that arise when transitioning from computer simulation to the physical world. Students are required to develop and experiment with robotic prototypes they will construct themselves. Prior experience in imperative and object-oriented programming (e.g., C++ or Processing) is required. As part of the course the students will have to complete a group-based mini-project incorporating a research project using computer-controlled robotics. The mini-project must be accompanied by a written report and oral presentation summarizing the project, method, approach, and conclusions (3 pages maximum).

Lecture 1: Foundations of Robotic Art (Lecture)
Lecturer: Elizabeth Jochum
Origins and development of robotic art from 20th century-present. This lecture provides an introduction and overview of robotic art from kinetic sculpture to contemporary robotic art.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
"History of Robotic Art" (Eduardo Kac)	11		Yes
Robotics and Art, Computationalism and Embodiment (Simon Penny)	20		Yes
Robotic Creatures: Anthropomorphism and Interaction in Contemporary Art (Ghedini; Bergamasco)	6		Yes

Lecture 2: Expressive Motion - Theories & Approaches (Lecture)
Lecturer: Elizabeth Jochum

This course explores concepts of expressive motion, an introduces students to creative approaches for designing expressive movement for robots. What is kinesics? Is imitation and mimesis the only way to design expressive behavior. How can flocking and swarming algorithms? What do these behaviors and motions indicate about narrative? What narrative,

interactive, or dramaturgical potential can we tap into using these external physical behaviors? This lecture considers the use of flocking and swarming algorithms in robotic art installations.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
“Designing Robots with Motion in Mind” (Hoffman and Ju)	32		Yes
"Make Robot Motions Natural" (Amy Laviers)	2		Yes
The Helpless Soft Robot - Stimulating Human Collaboration Through Robotic Movement Milthers, A. D. B., Bjerre Hammer, A., Jung Johansen, J., Jensen, L. G., Jochum, E. A. & Löchtefeld, M., 2019, 2019 CHI Conference on Human Factors in Computing Systems. (CHI EA '19).	6		Yes
"An Experimental Study of Apparent Behavior" (Heider & Simmel)		17	

Lecture 3: Expressive Motion: Programming I

Lecture + Exercise
Lecturer: Markus Löchtefeld

Introduction to the concepts of state machines, turtle walks and random walks as a means for executing basic motions as well as how to implement those using the Processing programming language.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Random walk - Wikipedia, https://en.wikipedia.org/wiki/Random_walk	1		Yes
Abelson, H. and diSessa, A. A. (1980). Turtle Geometry: The Computer as a Medium for Exploring Mathematics. MIT Press.	3		Yes
Pearson, K. (1905). The problem of the random walk. Nature, 72:294, 318, 342.	3		No
Braitenberg, V. (1984). Vehicles: Experiments in Synthetic Psychology. MIT Press.		3	No

Lecture 4: Language of Motion - Programming II
Lecture + Exercise
Lecturer: Markus Löchtefeld

Composing simple motions with state transition networks (Markov chains). Non-functional animations and simulated interactions. Furthermore, basic concepts of Flocking will be introduced.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Powell, V. (2014). Markov chains. - http://setosa.io/blog/2014/07/26/markov-chains/index.html	1		Yes
Reynolds, C. W. (1987). Flocks, herds, and schools: A distributed behavioral model. Computer Graphics, 21(4):25-34	6		Yes

Lecture 5+6+7: Soft-Robotics
Workshop
Lecturer: Markus Löchtefeld & Elizabeth Jochum

Soft robots have the potential to change what we use robots for and challenge how we perceive them. Material scientists, roboticists, computer scientists and biologists are working together to challenge the motion of what a robot can be. Researchers are trying to build sustainable robots of materials that perish after they have completed their task. Students will explore the artistic aspects of soft robots as relational and processual objects through hands-on techniques. The workshop explores not what softness is, but what softness can do.

Literature

	Pri. lit. no of p.	Sec. lit. no of p.	Dig. upload
Rus, Daniela, and Michael T. Tolley. "Design, fabrication and control of soft robots." Nature 521.7553 (2015): 467.	23		Yes
Jørgensen, Jonas. "Appeal and Perceived Naturalness of a Soft Robotic Tentacle." Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction. ACM, 2018.	2		Yes
Jørgensen, Jonas. "Interaction with Soft Robotic Tentacles." Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction. ACM, 2018.	1		No
Anna Dagmar Bille Milthers, Anne Bjerre Hammer, Jonathan Jung Johansen, Lasse Goul Jensen, Elizabeth Ann Jochum and Markus Löchtefeld. 2019. The Helpless Soft Robot - Stimulating Human Collaboration through Robotic Movement. CHI EA '19. ACM, New York, NY, USA	6		Yes
Laschi, Cecilia, et al. "Soft Robotics: Trends, Applications and Challenges." (2016).		15	Yes

Lecture 8+9: DIY Robot (Workshop)
Lecturer: Elizabeth Jochum & Markus Löchtefeld

In this workshop students will have the chance to build their own robots connected to the semester theme.

Lecture 10: Final Presentation
Lecture
Lecturer: Elizabeth Jochum & Markus Löchtefeld

In class presentations and screening of the project videos (from Video Editing). Completion of in-class assignment (3 page report using IEEE Template). Evaluation and feedback.

Examination

Active participation/continuous evaluation

Active participation in the module's series of lectures and other course related activities is required. Active
participation is defined as reading of set literature, 80 % attendance of the module's series of lectures and
other course related activities, contribution to the module's discussion sessions through presentations
and active participation in discussions as well as hand in of all assignments.

Re-exam:

Written exam:
Form of examination: c)

Hand in: Individual.

The examination is a 7-day assignment on a set subject. Number of pages: the written part must not
exceed 10 pages.

In case of a Fail grade, an additional examiner will also evaluate the assignment.