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| **Modultitl, ECTS angivelse**  Mixed Reality Technologies  5 ECTS |
| **Placering**  5. Semester |
| **Modulansvarlig**  David Meredith |
| **Type og sprog**  Individuelt eller i mindre grupper  **English** |
| **Læringsmål**  I dette modul skal den studerende opnå: Grundlæggende **viden** om   * teorier og metoder, der anvendes inden for udarbejdelse af mixed reality-systemer * forbinde fysiske og virtuelle miljøer * metoder til evaluering af erfaringer og tilstedeværelse i forskellige miljøer * design af mixed reality-miljøer.   Færdigheder i at   * anvende metoder til udvikling af augmented, mixed og virtual reality-miljøer * anvende metoder til sporing af genstande * anvende metoder til analyse og genkendelse af menneskelige bevægelser * analysere forbindelsen mellem virkelige, augmented, mixed eller virtual reality-miljøer * analysere brugeroplevelser og tilstedeværelse i augmented, mixed eller virtual reality-miljøer.   Kompetencer i at   * analysere og konstruere augmented, mixed og virtual reality-miljøer * analysere og konstruere motion capture-systemer * analysere og konstruere systemer, som forbinder information mellem virkelige, augmented, mixed eller virtual reality-miljøer. |
| **Indhold**  Formålet med dette modul er at give den studerende en introduktion til teorier og metoder inden for mixed reality-teknologier i forhold til udarbejdelse af interaktive eller reaktive narrativer og forestillinger, der kombinerer virtuelle og fysiske rum. Modulet består af teoretiske og praktiske fag og seminarer om anvendelsen af teknologier til udarbejdelse af performative miljøer og/eller installationer. |
| **Omfang og forventet arbejdsindsats**  5 ECTS points. 1 ECTS point = 27,5 times arbejde. 5 ECTS = 137,5 timers arbejde bestående af forberedelse til undervisning, undervisningsdeltagelse, gruppearbejde, øvelser, vejledning og eksamener |
| **Modulaktiviteter (kursusgange m.v.)**  This course will provide a thorough introduction to creating real-time interactive multimedia content using the *TouchDesigner* visual programming language (https://derivative.ca/). The course will consist of 12 half-day sessions. Sessions 1-5 and 7-11 will each consist of two 45-minute lectures, followed by a 90 minute supervised exercise session. In sessions 6 and 12, each group will present a live performance of a 5-minute interactive multimedia work created in *TouchDesigner*. The performances will be followed by discussion and feedback from both the lecturer and other students. In order to pass the course, a student must make a significant contribution to the creation and performance of two multimedia works of satisfactory complexity and sophistication using TouchDesigner, which they will present to the lecturer and other students in sessions 6 and 12. In these works, the students must demonstrate that they have attained a good command of using TouchDesigner as an expressive tool for real-time interactive multimedia performance.  As this is the first time that the course will run, it is not possible at this stage to give a detailed description of the content of each of the 12 sessions. However, topics covered in the course will include the following:   * Introduction to basic TouchDesigner concepts * Components (COMPs), including object components (3D objects for rendering) and interactive 2D panel components * 2D image processing and generation with Texture Operators (TOPs) * Motion tracking, audio, animation and control signal processing with Channel Operators (CHOPs) * 3D surface processing and generation with Surface Operators (SOPs) * Scripting TouchDesigner in Python with Data Operators (DATs) * Using materials and shaders (Material Operators, MATs) * Creating interactive virtual and augmented reality environments * Projection mapping * Motion tracking with Leap Motion * Networking with OSC   For an introduction to TouchDesigner, see the following:  <https://derivative.ca/UserGuide/First_Things_to_Know_about_TouchDesigner> |
| **Eksamen**  The course is evaluated by active participation.  In order to pass the course, a student must make a significant contribution to the creation and performance of two multimedia works of satisfactory complexity and sophistication, using TouchDesigner, which they will present to the lecturer and other students in sessions 6 and 12. In these works, the students must demonstrate that they have attained a good command of using TouchDesigner as an expressive tool for real-time interactive multimedia performance. |