School of Creative Media
香港城市大學
City University of Hong Kong

BScCM Final Year Project 2020 – 2021
Declaration and Project Proposal Form

<< Group Name: NNN ; Group No.: 20 >>

<< CREATOR >>

Student Name/EID : ZHENG Kexin / kexizheng3

Student Name/EID :

Student Name/EID :

Programme Code : SM4602 / SM4701

Advisors SCM : FU Hongbo

CS : WANG Shiqi

Date : 31 August 2020

Version : Final

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Notes to BScCM Final Year Graduation Students:

1. Pre-requisites of BScCM FYP: Completion of 18 credit major core courses
2. The student must obtain potential advisors' consent, agreement and signature before submitting this form. The School is not responsible for arranging an advisor for any student. The yearlong graduation project will be co-supervised by both SCM and CS faculty or teaching staffs. There should be at least one advisor from SCM and one from CS. Please refer to the lists of CS and SCM staff members and their areas of interests who may take up the role as advisors in the CANVAS.

3. Advisors may contact the student for modification of the project proposal, if required, before the student could formally start the final year project in the summer term.

4. The student can only change the advisors and FYP topic within the first week of Semester A with strong justification and approval from both SCM and CS advisor, and the course leader. Once approved, the student must complete this form again and inform both SCM and CS advisor, the course leader and the SCM General Office of the changes. Major changes after this period are not allowed. If the student insists, the student is required to provide substantial justifications for the School's consideration.

5. The student must conduct the research, analyse and development of their FYP during the summer term. Base on the outcome, the student is required to refine, consolidate and resubmit a final version of this form as the "Contract of FYP" at the beginning of semester A.

Notes to the student who are going to exchange in semester A/B :

It is not a normal practice to take a course while you are on exchange. Hence, prior approval from the School is required. If you intend to register for FYP while on exchange, you need to provide the supporting statement from your SCM and CS advisors and submit the justification with this form to the BScCM Programme Leader and SCM Associate Dean for consideration. Among other things, the following information is required:

1. What is the nature of the project (group or individual)?
2. What is the role of the student if it is a group project?
3. What contributions can the student perform in the semester on exchange?
4. What monitoring mechanism will be in place to ensure student's participation in the project before and after the exchange?
5. Whether the registration of FYP while on exchange is supported by SCM and CS advisors?

(Note: Please attached and submitted your justification with this Declaration Form)

Please contact SCM Office - Sheree Leung (Sheree.Leung@cityu.edu.hk or 3442 4825) if you have any enquiries about the above procedures related to student exchange.

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DECLARATION & GROUP LIST

I hereby acknowledge and accept to begin the enrollment process for the yearlong final year graduation project (FYP) by completing and submitting this declaration form with the approval and signatures by my SCM and CS advisors on or before the deadline.

(Important Note: Late submission of this declaration will not be accepted nor processed. The school will assume the student opt NOT to enroll into the final year graduation project and will not submitted the student's name to ARRO for course registration.)

Note: Each group needs to submit one form only. There should be no more than 3 students per group. FYP grouping with BA/BAS student(s) is possible. Please consult and get approval from the BScCM FYP course coordinator for the detail arrangement. The BA/BAS student must consult and get approval from their BA/BAS course coordinator too.

** Delete as appropriate*

Student Full Name (In block letter as on your ID Card)		
1 (Group Leader) ZHENG Kexin	2	3
Nickname		
1 (Group Leader) Nay	2	3
CityU EID		
1 (Group Leader) Kexizheng3	2	3
CityU SID		
1 (Group Leader) 55198848	2	3
Personal Email		
1 (Group Leader) Kexizheng3-c@my.cityu.edu.hk	2	3
Mobile Number		
1 (Group Leader) +852 5222 8573	2	3
Weekly Project Blog (Individual Weblog URL)		
1 (Group Leader) https://zkxfyp.blogspot.com/	2	3
Signature		
1 (Group Leader)	2	3
Date: 31 AUGUST 2020		

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PROJECT PROPOSAL

(A) Nature of Proposed Topics:

(Please put a ☑ in the box for your desired Project Nature. Your Project can contain more than one element of the below, but please identify the most appropriate term.)

- ☐ Games
- ☐ Installation
- ☑ Interactivity
- ☐ Animation/Visual Effects
- ☐ Other: _____

(B) Project Title:

CREATOR

(C) Project Objectives

Please describe the creative/artistic and technical objective of the proposed project.

Creative/Artistic Objective:

'CREATOR' is a mobile software that purposes a new design of interactive sketch. The user can draw with their finger on the screen to create different sketches and the AR software will analyze the sketches and turns them from 2D drawings into 3D models. The user can interact with the models with different hand gestures that are captured by the rear camera. With this application, the user can use their imagination to create anything, like a cube, an animal or a monster, and make them come alive. This project wants to encourage people to develop their imagination and bring special entertaining experience to them.

Technical Objective:

This software will turn the user's screen drawing into 3D models and enable them to interact with those models. To analyze the user's sketches, this application will use a special algorithm to turn the 2D drawings into 3D models. For the interaction, this application will track the user's hands with machine learning API and shows relevant animation of the sketch model.

(D) Project Description

An abstract of 300 - 500 words to illustrate the conceptual framework, an overall description of the project, problem, specification, and the associated citation & reference list. (Important Note: Click here for the note of Academic Honesty)

'CREATOR' is a mobile software on Android platform, which enable the user to create interactable 3D models based on their sketches. With 'CREATOR' the user can use their own imagination to create a magic AR world that coexists with their real living environment. 'CREATOR' could be used by users from different backgrounds. This project wants to encourage people to develop their imagination and bring special entertaining experience to them.

To use this software, the user will draw with their finger on the screen, which will later be turned into 3D models. The 3D models will perform animations according to the user's gesture interaction. The choice of animation effect will be based on the sketch analyses and detected gesture.

This project mainly consists of three functions.

1. 2D-to-3D Sketches
   This application will let the user draw on the screen and turns the on-screen sketches into 3D models accordingly using graphic programming techniques.
2. Sketch Analyze & Animation
   The application will analyze the user's sketch for some simple segmentation and categorization, for example, if the user draws a face, the application will be able to segment the eye, the ear and the mouth. By analyzing and segmenting the sketch, the software will decide how this sketch model is built and what animation should be shown for the interaction. The software will use graphic programming techniques to build the model and create the animation.
3. Interaction with the user
   With machine learning API such as 'Mediapipe', this software will be able to track the user's hand and recognize the gesture precisely. With the recognized data, the animated sketch model will show different animations for different interactions. The current plan is to design animations for 2-3 gestures for the interaction. If possible, other environment data, for example, light and sound, will also be considered as elements that affect the interactive animation response.

Google. (n.d.). MediaPipe. Retrieved August 31, 2020, from https://github.com/google/mediapipe

(E) Deliverables

AR Mobile Application

(F) Forms of Delivery Platform

Android Phone

(G) Equipment and Resource Requirements *(please list potential requirements on equipment, software & hardware etc. for internal budgeting purpose. There is no guarantee that such resources will be provided by the University.)*

Xcode /Visual Studio
Unity
Android Studio
Macbook Pro
Android Phone

(H) Production Plan & Schedule

2020	
September – October	Finish the screen-drawing function Testing APIs for the hand tracking Design and implement 2D-to-3D sketch model
November – December	Design and implement 2D-to-3D sketch model & animation function
2021	
January	Design and implement sketch analyze & animation function
February – March	Combine the hand tracking with sketch analyze function
April - May	Finish Prototype, Collect for user feedback.
June	Final Presentation

(I) Area of Research *(Examples: Research in UI/UX, ludology, human computer interaction, computer graphics, internet of things, visualization technology, storytelling, game production documentation, installation & interactivity, media art & design, coding, animation design, VFX design and technologies, software and hardware solution, system integration… etc.)*

Human-computer Interaction,
Augmented Reality,
Computer Graphics (Sketch Segmentation & Analysis),
Machine Learning

APPROVAL

SCM and CS Advisors

Note: The yearlong graduation project must be co-supervised by both SCM and CS faculty or teaching staffs. There should be at least ONE advisor from SCM and one form CS. The list of SCM advisor & CS advisor can be found in CANVAS.

Approved by SCM Advisor:	**Approved by CS Advisor:**
FU Hongbo	WANG Shiqi
Signature: (Digital Signature is Okay)	**Signature:** (Digital Signature is Okay)
Date:	**Date:**

FOR OFFICE USE

** Delete as appropriate*

Descriptions	**Date**	**Signature**
Signed Proposal Received on		
Approved / Rejected* by		
Submitted to ARRO for Course Registration		