



PROJECT ROSTER

FALL 2016

Immersive Semi-Autonomous Aerial Command System

FALL & SPRING

Explore and envision new ways for human users to intuitively interface and collaborate with aerial drones around augmented reality (AR) technologies.



TEAM LEAD

Kevin Yin

ABOUT THE PROJECT

ISAACS is an open-source project to envision new ways for human users to intuitively interface and collaborate with aerial drones through augmented reality (AR) technologies. This project represents a new vision for a human-robot interface (HRI). The team will work on a HRI via AR: a new 3D, contextualized robot interface that allows operators to control and command a drone fleet directly from the HoloLens. Ultimately, it can provide a seamless and intuitive extension to human operators' perception, enabling them to control a fleet of aerial vehicles in complex environments.



HoloLens

TEAM ROLES

Software Developer.

Responsible for improving the existing prototype, integrating the front end unity application with the backend ROS server and drone. Qualifications: Experience with Unity (preferred), ROS, networking.

3D Artists

Responsible for creating the assets that will be utilized in the interface.
Qualification: Maya or equivalent

Unity Developer

Responsible for building the interface and interactions in Unity.

UX Designer

Responsible for performing design user study to provide guidance for user interface development.

OpenARK (Augmented Reality Kit)

FALL & SPRING

Creating fluid interface between humans and holograms



TEAM LEAD

Bill Zhou

ABOUT THE PROJECT

This project is an open-ended research project with a goal to create the first open source augmented reality development toolkit that can enable human computer interaction in 3D space on any AR platform. It integrates depth sensors, RGB camera, and transparent display glasses in a head-mounted platform to prototype the collection and display of information within an augmented reality system. Think of it as recreated Iron Man.TL;DR: Make Iron Man



TRANSPARENT
DISPLAY GLASSES

TEAM ROLES

Computer Vision Researcher

Using RGB-D point cloud information to create or improve various features in an AR glasses. Qualification: C++

UX Designer

Responsible for providing design user study to provide guidance for creating the human computer interface



AR Applications in Medicine

FALL & SPRING

Studying the uses of AR technology in medicine



TEAM LEAD

Will Huang

ABOUT THE PROJECT

My team is working with the Berkeley Augmented Telemedicine group. We're building a system to assist medical field workers such as paramedics to be able to communicate with medical professionals in a accurate, intuitive manner using augmented reality. We will be conducting user studies through interviewing doctors to decide the most intuitive interface for our engineers to improve current system. On engineering side, we will be working on manipulating mesh models in real time to enhance some of existing features. This semester, it involves both UI/UX design and computer vision.



Medical VR
Concept Art

TEAM ROLES

UI/UX Designers

Explore a new field by creating UI for virtual reality platforms. Previous design experience highly preferred.

Computer Vision Researcher

Using Kinect RGB-D data as input for enhancement in current features, using PCL and OpenCV



Augmented Textbooks w/ Cardboard

FALL & SPRING

Creating a new medium for learning



TEAM LEADS

Tom Cheng
James Carlson
Eric Zhang

ABOUT THE PROJECT

Ever wished you could take that diagram from your textbook and pull it out of the page to look at it from every angle? AR Textbooks allows you to use your phone to bring diagrams to life! By using a Google Cardboard, it allows full stereoscopic viewing of the diagram that virtually jumps out of the page. Last semester, we created a working prototype, and this semester we will be enhancing the functionality and creating a polished demo that showcases the potential of AR to effectively evolve the textbook.



AR Textbooks

TEAM ROLES

Software Developer

Responsible for improving the existing prototype and implementing additional features
Qualifications: Experience with Unity (preferred), OpenCV or other Computer Vision libraries/SDKs (optional but a plus).

3D Artists

Responsible for creating the assets that will be utilized in our demo. Qualification: Maya or equivalent

Unity Developer

Responsible for improving the demo in Unity.

UX Designer

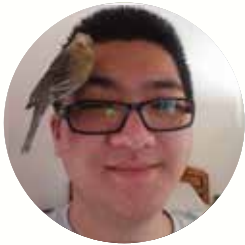
Responsible for performing design user study to provide guidance for user interface development.



Microgames

FALL & SPRING

Building bite-sized games in VR



TEAM LEAD

Andrew Shibata
Rohan Murthy

ABOUT THE PROJECT

Have you played WarioWare? If not, it's a bunch of wacky microgames where you have 5 seconds to complete an objective. For example, put a paper into a shredder, or assemble a sandwich. In this team you will learn how to use tools such as Unity and Maya and work in a team environment to make your own microgames for the HTC Vive. No experience necessary, just a good attitude and tenacity is required. The point of this team is to have an exciting and thoughtful learning experience for those that are interested in content creation on any platform imaginable.



Microgames

TEAM ROLES

Game Developer

Learn Unity to create fun, immersive experiences. Useful Classes: 61A, 61B, CS184, CS280

3-D Artist

Use Maya to create 3D models for game characters, tools, or obstacles.



VR Animated Short

FALL & SPRING

Create, design and animate a short clip that will take advantage of the full scope of virtual reality's capabilities for interaction!



TEAM LEAD
Isabel Zhang

ABOUT THE PROJECT

The VR Animation team is working on creating an animated short that allows an audience to discover videos and films in a completely different medium than what people are accustomed to. Never before have people been able to experience such intimacy with the characters in a film. Akin to Oculus's Henry, this team plans to make a short clip (1-5 minutes) that explores story-telling in a three dimensional space.



DEMOS AT
CAL DAY

TEAM ROLES

3D Artists

Design and model characters/props to be shown in animated short [Experience with Maya, Blender, etc.]

Sound Engineer

Create/find sound effects and link within game engines like Unity/Unreal to create realistic experience for viewer [Experience with audio programs, experience with Unreal Engine and Unity Game Engine a plus]

Animators

Animates with models created by 3D artists [Experience with animation / VR design principles]



Dark VR

FALL & SPRING

Exploring potential “misuses” of VR/AR



TEAM LEAD

Keiran Paster

ABOUT THE PROJECT

Dark VR is about exploring potential “misuses” of augmented and virtual reality technology. For example, what would advertising look like? Dark VR could explore the use of 360° cameras for food advertising. Or, what if augmented reality was used to overlay a trajectory next to a Nerf Gun? Dark VR is about researching the effects of these types of ideas.



Dark VR

TEAM ROLES

Unity Developer

Experienced in working with Unity. Preferably strong at C#.

Art Designer

Experienced with 3D modeling. Preferably has experience on previous 3D game projects.

Researcher

Designs experiments and has a say in the direction of the project.



Landships

FALL & SPRING

Creating novel multiplayer experiences in VR



TEAM LEAD

Ian McCaulay

ABOUT THE PROJECT

Our objective is to explore the exciting potential of multiplayer game development in virtual reality. We're using the Unity 3D engine to create Landships, a multiplayer tank combat simulator. Players will take on the various roles of a tank crew, with one driver, one shooter, one loader, and one spotter, and work together to battle enemy tanks controlled by other teams or AI. Can VR deliver an immersive enough experience to simulate this kind of cooperative team play?



Landships

TEAM ROLES

Software Developer

Experienced in working with Unity. Preferably strong at C#.

Game Developer:

Design and plan features and gameplay of Landships, and build it using Unity 3D. Experience with Unity required.

3D Modelers:

Create assets that will be used in Landships. Experience with Maya or equivalent required.

UI/UX Designers:

Work to create as enjoyable and intuitive an experience as possible. Requires creativity and experimentation to solve UI/UX problems in VR.



Virtual Reality Alcohol Use Treatment (VRAUT)

FALL & SPRING

Rehabilitation in virtual reality



TEAM LEAD

Nani Walker

ABOUT THE PROJECT

VRAUT is a virtual reality treatment prototype designed around Oculus Rift technology to provide an interactive, therapeutic environment, using real-time scenarios with alcohol use-stimuli, to relieve the burdens of excessive alcohol use. We aim to initiate a pilot study, and analyze results using neuroimaging and self-questionnaires, to study the long-term effects of virtual immersive experiences in altering the brain's responses in people with substance use disorders.



VRAUT

TEAM ROLES

Unity Developer

Responsible for building the interface and interactions in Unity.

3D Artists

Responsible for creating the assets that will be utilized in the interface. Qualification: Maya or equivalent

UX Designer

Responsible for performing design user study to provide guidance for user interface development.



Haunted Halloween

FALL

Design and build thrilling VR experiences for Halloween 2016



TEAM LEAD

James Lin

ABOUT THE PROJECT

Good VR acts like an emotion amplifier. This amplification is most easily demonstrated with horror.” Last Halloween, our haunted hospital demo successfully made people scream. Let the thrills elevate this year! Members on this team will work together to create a compelling horror game for the HTC Vive while learning how to use the Unity game engine and build 3D models in Maya. The team is expected to study the importance of the balance between amplifying horror and being responsible for the players. You are also expected to enjoy watching people scream and tremble at your demo on Halloween.



In-Game Scenes

TEAM ROLES

Unity Developers

Implement game mechanics, components, and trigger events

3D Artists

Responsible for game art design and 3D contents modeling



Virtual Campanile

FALL & SPRING

The most iconic symbol of UC Berkeley is now available in VR



TEAM LEAD

Yulin Zheng

ABOUT THE PROJECT

Last semester, using the Unity game engine and the HTC Vive, we created a virtual version of the Campanile along with an interactive carillon, a massive musical instrument consisting of 61 bells on top of the tower. The intent of this project was to provide people the chance to experience playing a well-known instrument that is rarely accessible on campus. The Virtual Campanile was very well received on Cal Day 2016, but it still has room for improvement and creativity. This semester, we will be



Campanile

TEAM ROLES

Unity Developers:

Responsible for improving gestures tracking and implementing game mechanics

Unity Shader Writers:

Responsible for writing surface, vertex and fragment shaders in Cg/HLSL

3D Artists:

Responsible for designing and modeling 3D contents

