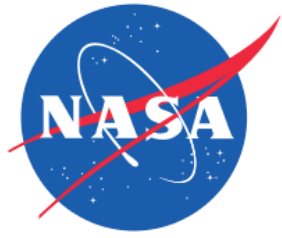


Virtual Reality Storytelling Through Simulations

Sara Caudill

Summer 2020 Intern, Simulation Engineering

Mentor: Aamod Samuel



Sara Caudill

The Ohio State University

MFA Candidate, Design
Spring/Summer 2021



Previous Work:

The Ohio State University,
Graduate Teaching
Assistant

The Ohio State University,
Department of Athletics
[Scoreboard Animator](#)

Fox TV Animation,
The Simpsons Intern

U.S. Department of State,
Fulbright ETA Grantee

Other Projects:

Save The Children,
No School, No Peace
Lead Designer

Graduate Thesis Project,
AR Creature Tokens

Hospital Heroes: Rugby's
Medical Adventure
Children's Book Illustrator

Find the Path Ventures,
Freelance Artist

Hobbies:

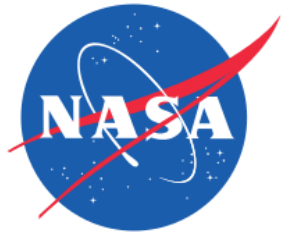
TTRPGs

Video Games

Hiking

Running

Drawing

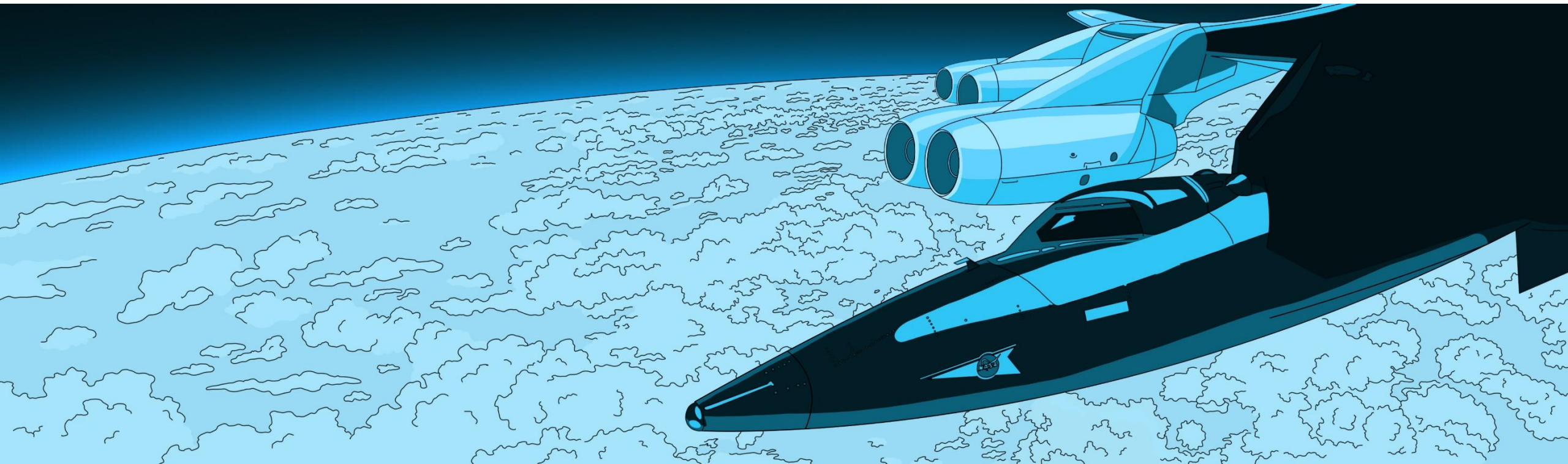


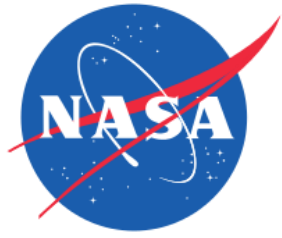
Project Overview



In conjunction with NASA Armstrong's 75th anniversary, the Simulation Engineering team is creating a narrative virtual reality experience underscores the center's past and future aerospace accomplishments while showcasing our in-house simulation capabilities.

“To Separate the Real from the Imagined Through Flight”





Intent



1

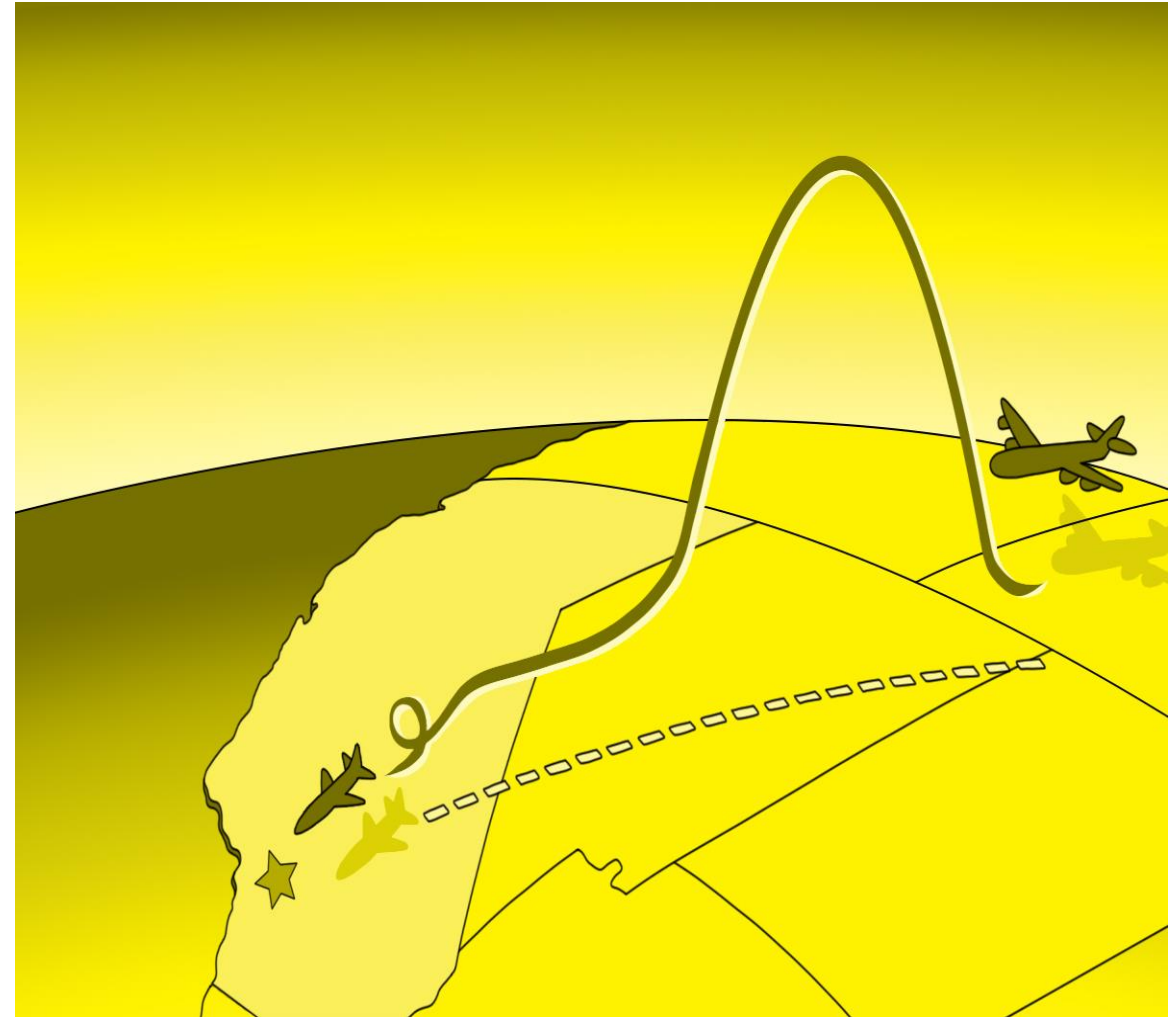
Showcase the Sim Team's ability to calculate the dynamics of an aircraft at any given situation through a robust narrative VR experience.

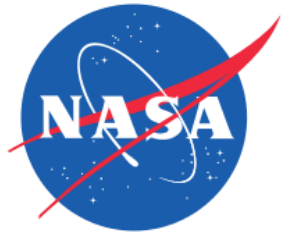
2

Provide users at all levels of expertise the thrill of piloting an aircraft.

3

Celebrate NASA Armstrong's 75 years as pioneers and innovators in aerospace technology.





Tasks



1

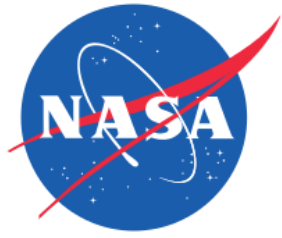
Generate a design document that details the mechanics, scope, loops, art direction, user personas, character profiles, and project vitals.

2

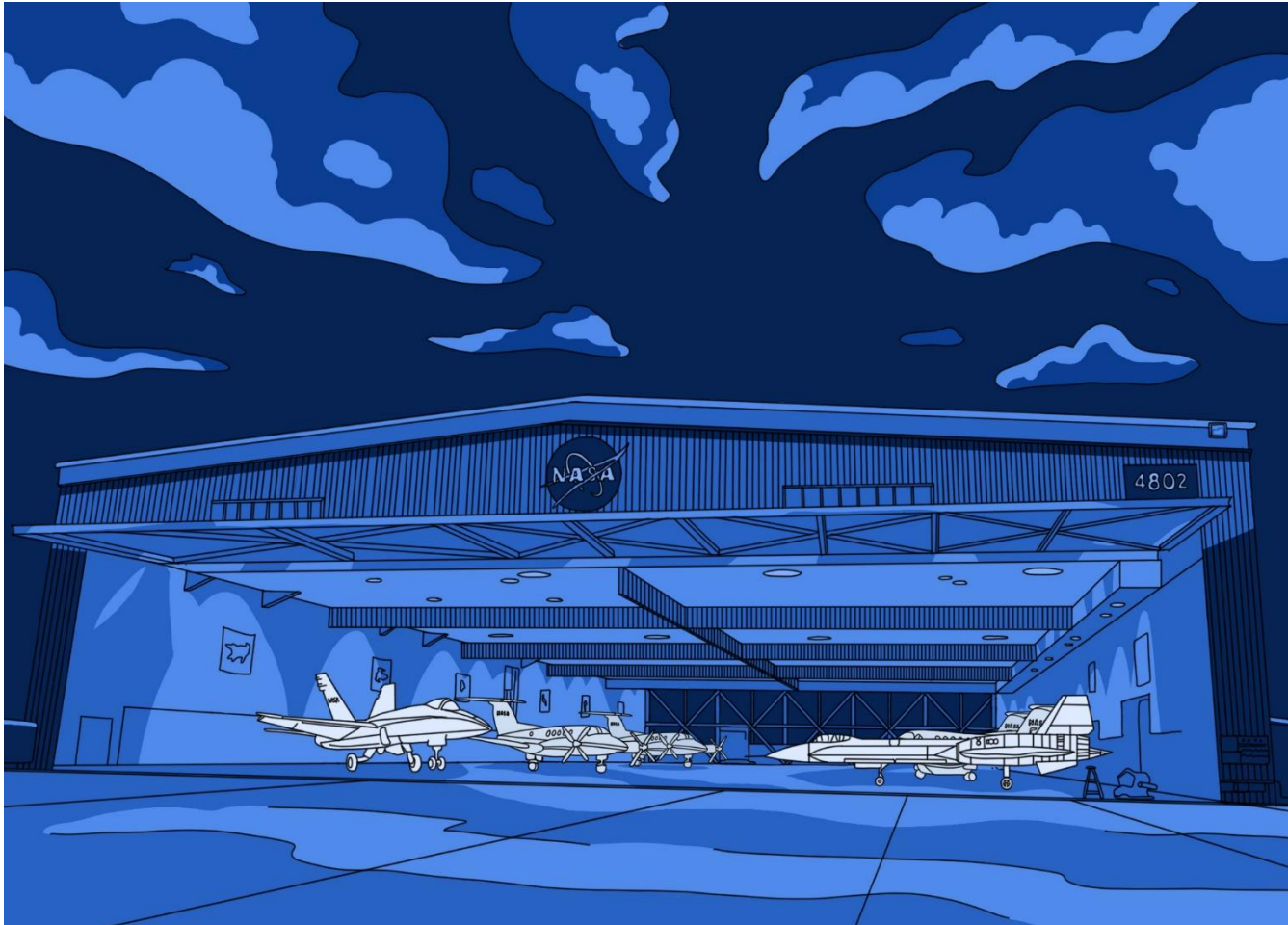
Devise the narrative, including the script, concept art, and storyboards.

3

Begin asset production by creating environment layouts in 3D modeling software.

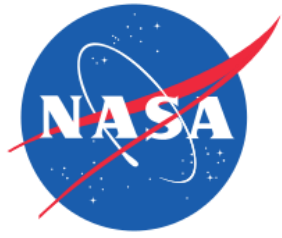


Results: Scope



Greater Heights

- _ 3-5-minute seated VR experience
 - _ User pilots iconic current and historic AFRC aircraft
 - _ Emphasizes user choice and direct control
 - _ Designed with first-time VR user in mind
- _ Two discrete modes: Story Mode and Free Flight
- _ Inspired by works such as *Apollo 11 VR* (Immersive VR Education, 2019), *Anne Frank House VR* (Force Field, 2018), and *Microsoft Flight Simulator* (Asobo Studio, 2020)



Results: Experience Loop



Initialization

Story Mode

Embodiment

Background

Flight

Free Flight

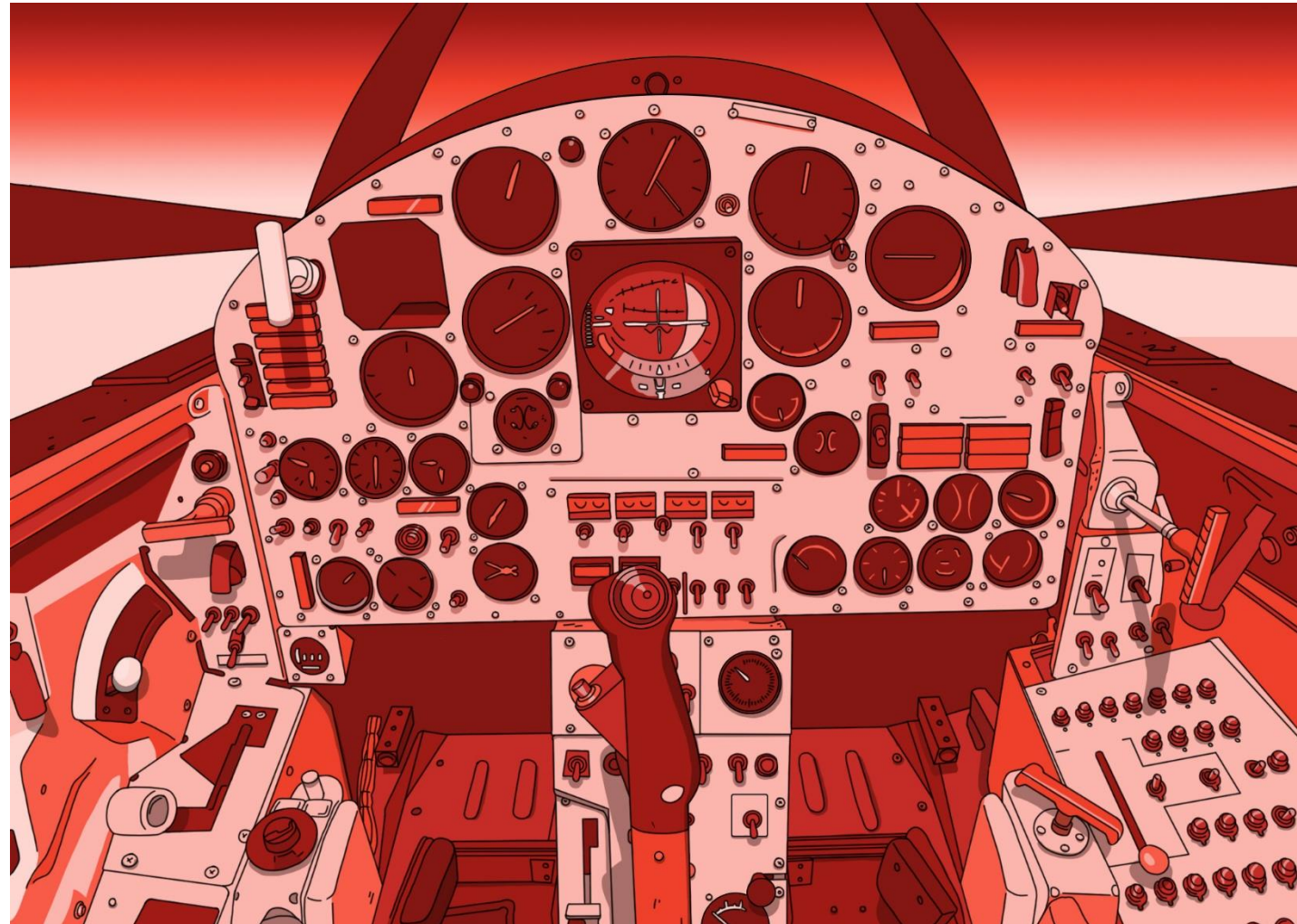
Highlights

Fly

Takeoff

Mid-Flight

Landing



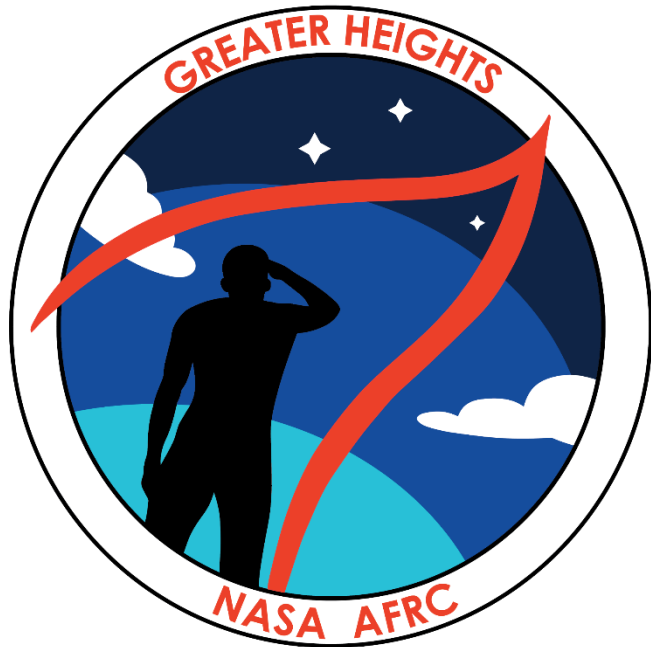
Version 1



Version 3



Version 2

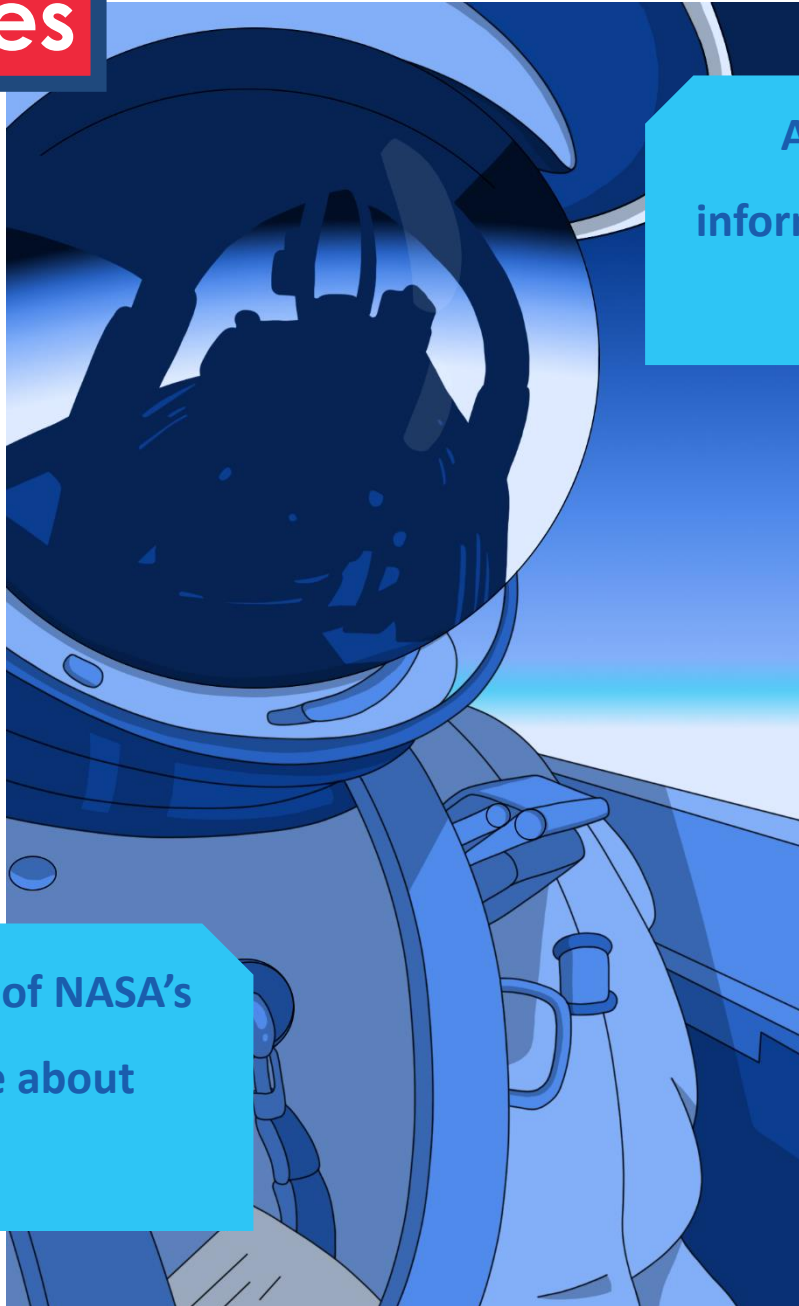


Results: Art Direction/Concept Art

Results: Player Profiles



A user with a fundamental understanding of NASA's mission who is interested in learning more about AFRC's specific accomplishments.



A user who is not necessarily seeking more information but who simply wants to enjoy the experience of flying an aircraft.



Results: Narrative

FADE IN:

INT. OFFICE - DAY

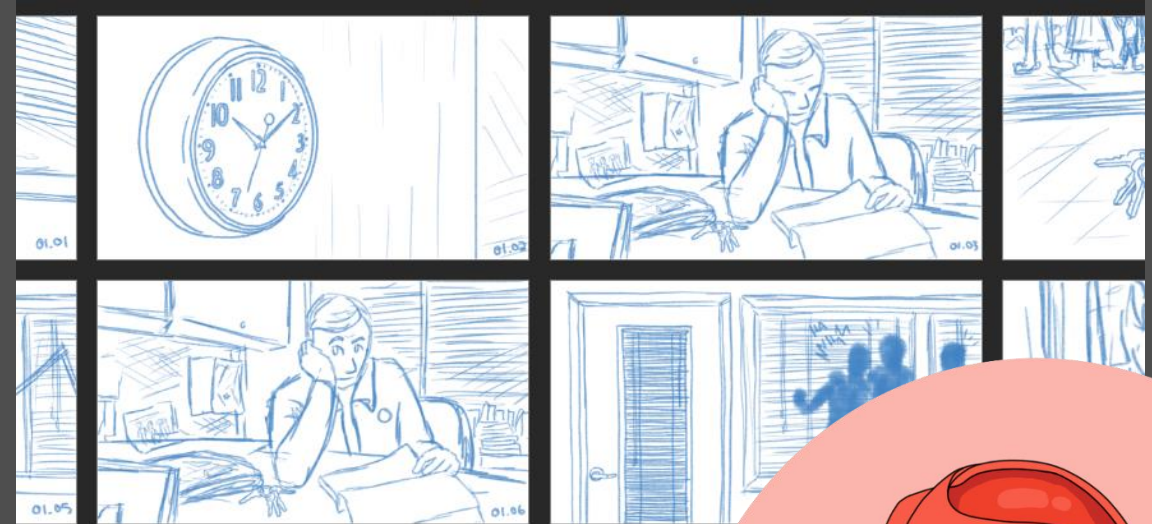
Early morning light streams through the windows of NASA Flight Research Center at Edwards Air Force Base, California. Test pilot NEIL ARMSTRONG sits in his office. A clock ticks on the wall, but it is otherwise quiet.

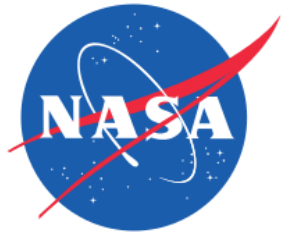
The Bakersfield Californian on the desk is dated July 26, 1962. Other items on the desk include: a flight plan detailing the day's high alpha test; a key ring with four sets of MGA car keys; and a framed photograph of Neil's wife, Janet, and their two children, Eric and Karen.

Raucous voices gradually carry into the room. The door to Neil's office is closed, but three silhouetted figures can be seen through the window blinds. As they near the door, it becomes apparent that they are good-naturedly ribbing Neil and each other. JOSEPH A. WALKER seems to be the most boisterous of the bunch.

JOE (O.S.)

So what're the odds Neil's gonna balloon again today? Any bets on him bouncing right on out of the atmosphere?





Results: Project Vitals



Projected Development Cycle

Concept: Summer 2020

Preproduction: Summer 2020

Asset Development: Fall 2020

Playable Build: Fall 2020

Vertical Slice: Fall 2020

Beta: Spring 2020

Final Build: Spring 2020

Release: Spring/Summer 2020

Expected Software Needs

Adobe Creative Cloud

Blender

Unity

RT3D

Team Needs

Designer(s)

Programmers

Actors

QA Testers

Lessons Learned

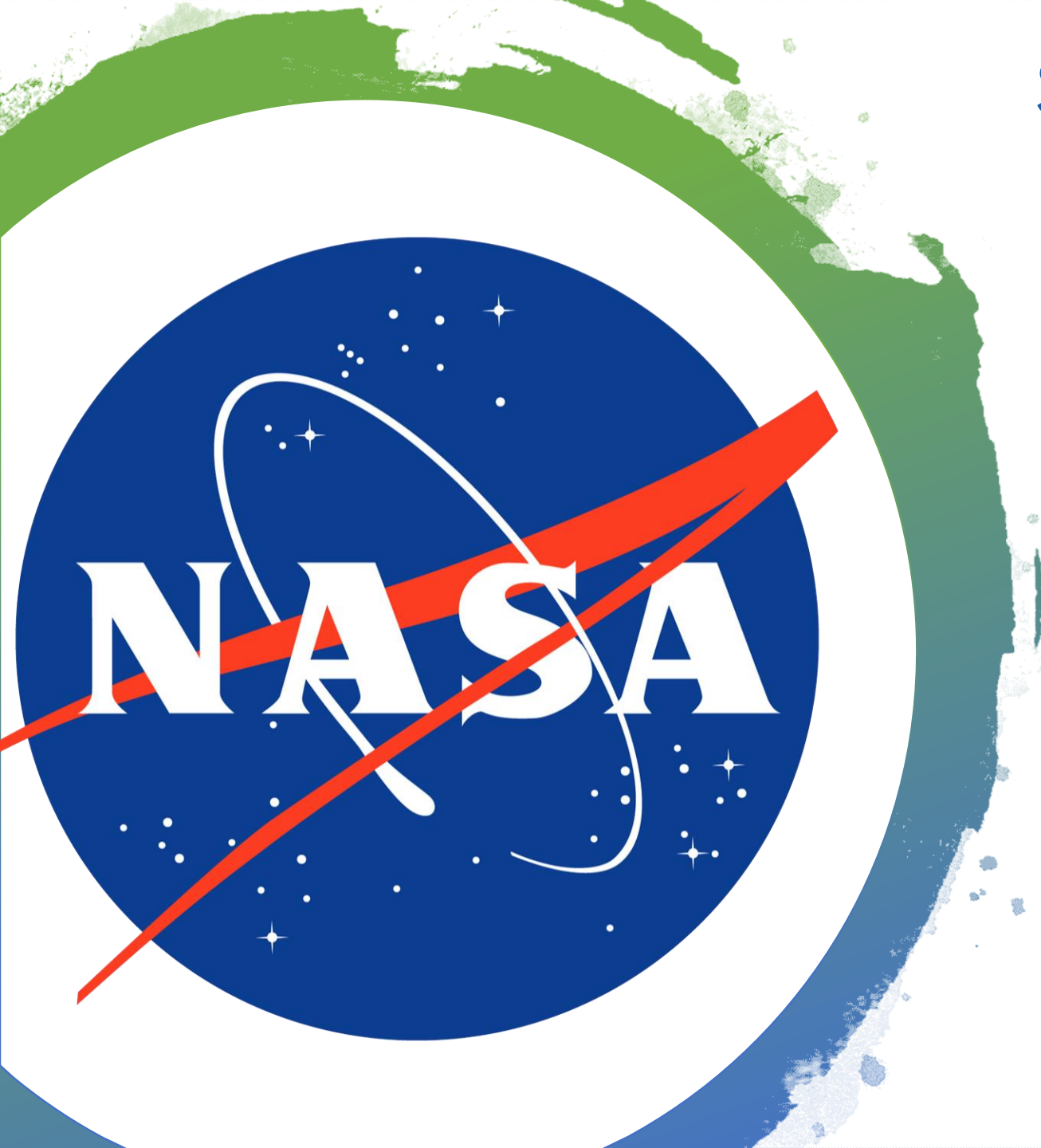
- Professional, hands-on experience with the VR production pipeline
- Development of practical software skills
- Broadened understanding of applications for my area of expertise
- Deeper appreciation for the depth and breadth of the NASA mission





Future Work

- Possible Fall 2020 internship extension
- Spring/Summer 2021 graduation
- Future Design/XR NASA opportunities



Special thanks to...

NASA Armstrong; the AFRC
Sim Team; Mentor Aamod
Samuel, Internship

Coordinator Lisa Illowsky;
OSU Department of Design
Chair Dr. Mary Anne
Beecher; and Professors
Maria Palazzi and Shadrick
Addy!

Q&A

