Jacob Le

Disciple of Computer Game & Karate

Contact

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LinkedIn
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Profile

My passion is in user software and media interaction. I am eager to take on this passion from different angles - game design, narrative, art, and development. A disciple of computer game and Karate, I am a quick and self-motivated learner with ability to lead. I tackle all my academic and work assignments with the same eager resolve as in my Karate training. I adapt and work very well with team members even in adverse condition.

This June, I will be graduating as an engineering major in Computer Game Design at UC Santa Cruz. My goal is to work as a game software engineer.

Education

Bachelor of Science (June 2018)
Computer Game Design
University of California at Santa Cruz
Jack Baskin School of Engineering

High School Diploma (May 2014)
International Baccalaureate Diploma
Henry J. Kaiser High School
Valedictorian: Summa Cum Laude

Skills

Unity 3D
Blender 3D
Game Design
Game Art
Game AI
XAI
Game Development
C, C++, C#, Python, Java, JavaScript
SQL, XML
Photoshop
Scrum Project
Board Game
Shitō-ryū Karate
Coaching

Experience

Simulation and Modeling Intern
PARC, a Xerox Company
Jul 2017 – Sep 2017
Palo Alto, California

Research Team member of the DARPA funded Explainable Artificial Intelligence (XAI) during Summer 2017. Developed the testbed to be used for Reinforced Learning / Neural Network testing. Used Ardupilot Autopilot library and Python to create a wrapper API, dubbed MAVSim, to provide complete control over an unmanned craft simulation for machine learning agents to learn on. Over the course of three months (10 sprints), I communicated with other machine learning researchers to identify desirable features for MAVSim. I worked independently, learned how the Ardupilot library functioned and implemented simulation control features such as loading, saving and pausing. With MAVSim, researchers are able to easily step through, abstract and explain the actions of the artificial intelligence.

Karate Assistant Instructor
International Karate Federation, Hawaii
Mar 2013 – 2016
Honolulu, Hawaii

Assisted two-time Karate World Champion Sensei George Kotaka in teaching and coaching students. Occasionally filling in as main instructor. Awarded gold medal in weapons category Brown/Black Belt division in the 2013 Amateur Athletic Union National Karate Tournament, Cincinnati, Ohio. Enjoy teaching and working with people. Experienced with leading and working among peers and in groups. I see great potential in young adults. Their discipline and commitment in Karate have pushed me to become a better instructor and learner.

Honors & Certifications

Valedictorian: Summa Cum Laude
May 2014
Henry J Kaiser High School
Honolulu, Hawaii

UC Santa Cruz Dean's Honors List
Fall 2017
Jack Baskin School of Engineering
Santa Cruz, California

International Baccalaureate Diploma Program
May 2014
Henry J Kaiser High School
Honolulu, Hawaii

Competent Toastmaster
(In-progress)
Santa Cruz Toastmasters
Santa Cruz, California

Black Belt, Shitō-ryū Karate
Mar 2014
International Karate Federation
Honolulu, Hawaii

AAU Karate Weapons Kata Gold Medalist
July 2013
AAU Karate National Tournament
Cincinnati, Ohio

Portfolio

Solus
Jan 2018 – June 2018
Solus is a game made in Unreal 4 engine about explorers finding their way through the vast cosmos. My role is to program and provide oversight in our team's narrative department. One of the most compelling game attribute is the use of immersive narrative without audio logs coupled with a mysterious storyline that players have to pieces together slowly. Solus is a UC Santa Cruz capstone project and will be released for free on Steam in June 2018. See project.

3D Modeling with Genetic Algorithms
Nov 2017 – Dec 2017
Used genetic algorithms to model and shape an assortment of 3D cubes to match a target 2D image. Employed a combination of the p5.js and three.js JavaScript libraries to provide image matching capabilities and 3D environment rendering respectively. See project.

MAVSim
Jul 2017 – Sep 2017
MAVSim is a Python wrapper API for in-depth unmanned vehicle simulation. MAVSim utilizes and presides over the Ardupilot autopilot library to give the user clear control over a simulated vehicle. Functionality includes [saving, loading, and editing] scenarios, [setting and editing] waypoints, automatic takeoff and landing, lidar/smart sensing for objects and database logging.

Most of my work was concentrated in designing the overall architecture and implementing the saving, loading, and editing of scenarios. The user may save a scenario (i.e. every facet of a simulated mission, from fuel levels, location, orientation, etc.) to be loaded at a later date. This gives the user much finer control over the simulation state and is ideal for running simulations in quick succession without having to redo a mission. See project.

A Place to Be
Jan 2017 – Jun 2017
This is a Digital Arts and New Media Thesis Project headed by 2nd year MFA graduate student Katherine Green at UC Santa Cruz.

"A Place to Be" is a game that contemplates death and the cycles of life through a simple digital simulation. Players are presented with a dreamlike natural world, with the opportunity to control an animal resident. They are given some time to explore, earning points for making discoveries and interacting with the world. However, this is only part of a much grander cycle. A creature's time is ever so limited. There's only so much a single individual, limited by their bodily circumstances and sensory abilities, can accomplish before they play out their role. Nonetheless, they dare to strive towards their own purpose.

Notables

LinkedIn Article
"*My First Experience Working on an Officially Released Game*"
June 20th, 2017

PARC Blog
"Jacob Le Explains Explainable AI"
September 7th, 2017

I coded "Boid" style AI for characters in Katie Green's Thesis Project, "A Place to Be." The code allowed for a flocking style of movement for several bird Non Playable Characters. When attached to the Player or any other Game Object, the script senses any birds in a certain radius and adds them to the "flock." The flock passes directions to each bird in the form of a 3-Dimensional vector, which then emulates a flocking behavior. The player can then "collect" the birds and amass a following of feathered friends. The scripts were coded in C# for the Unity 5 Engine. See project.

The Museum
Oct 2016 – May 2017
"The Museum" is a Digital / Analog hybrid puzzle/adventure board game inspired by "Betrayal at the House on the Hill." It started off as a class project between Alexander Mao, Hamilton Connor and myself, but I decided to continue to develop The Museum on my own with their consent. The game is set in a fictional abandoned museum. Players choose specialized characters who have their own skills and objectives. They must navigate the museum, completing sequential objectives while avoiding death at the hands of various supernatural entities and nefarious traps. A virtual tour guide in the form of a companion app is to be used to determine the outcome of some events and translate arcane messages. The virtual tour guide was programmed using Processing to accept codes found on each physical card and return an event that would affect the board state.

I am the sole writer/artist/producer/programmer for the game's lore, dialogue, physical components, cards/board art, and companion app respectively. The Museum was continued as part of Noah Wardrip Fruin's Playable Media graduate class. Although it is in a reasonable state now, I have ideas and plans to further expand and improve upon The Museum. See project.

See this link for a complete listing of my portfolio.

References

G. Michael Youngblood
Principal Engineer & Scientist
Palo Alto Research Center

Katherine Green
Graduate Teaching Assistant
UC Santa Cruz

Sensei George Kotaka
Head Instructor
International Karate Federation
Honolulu, Hawaii

Recommendations

"Jacob is a hard worker that takes ownership of his assignments and contributes in the planning, discussion, development, and testing of technical work effectively. Although our time working together was short, it was enjoyable, and as a form of my highest endorsement, I would gladly work with him again. If you are considering hiring or working with Jacob, stop looking as you have found the right person." **G. Michael Youngblood**, Principal Engineer & Scientist, PARC.

"Jacob Le worked with me as a programmer on my MFA thesis project, an experimental digital game titled "A Place to Be." Jacob was assigned to create the code that drove the behavior of "flocks" of "birds" that react to the player and other objects in various ways. This task was dramatically over scoped for the scale and time constraints of this project (involving the creation of a friendly AI from scratch, essentially) but Jacob worked tirelessly to try and meet all of the

goals I gave him. He was easy to communicate with and always kept me updated as he worked. In the end, the birds' behavior is simplified from the original idea, but is exactly as effective as it needs to be, and adds an extra dimension of life to the world. The code that underlies this behavior has a lot of potential for the creation of a complex, effective AI that is easy for other developers to work with. The code is well commented with variable and function names that are easy to understand. Jacob was great to work with and would make a great addition to any team!" **Katherine Green**, Graduate Teaching Assistant at UC Santa Cruz.

"I have used Jacob in small focus groups where he works solely on the developmental stages of each beginner student. Jacob has an innate ability to relate and motivate these young kids and it begins as early as five years old. He is kind, thoughtful, but most importantly, compassionate with these young kids who are heavily influenced by his great character. After working with Jacob for over a month, these kids are eager and ready to join the rest of the program with flying colors. Jacob is not only an assistant to my Kamiloiki program but he is also a student in my advanced class. He is the first student there and will always stay after class to perfect his craft. He is a true student of the game and it says so much about his character because his discipline does not waiver and it only gets stronger with time." **Sensei George Kotaka**, International Karate Federation, Hawaii