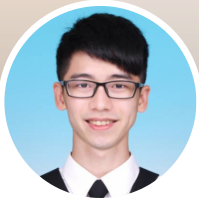

黃伯凱

VR/AR UX C/C++ Python Arduino Deep Learning

交通大學 | 資訊工程研究所 碩士畢業

苗栗縣竹南鎮 | 無工作經驗 | 希望職稱：演算法工程師

個性活潑熱情，喜歡面對挑戰。熟悉 AR/VR, Unity, UX, Python, C/C++, Arduino，為 HCI 領域畢業的新鮮人。

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就業狀態 待業中
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E-mail pokaihuang.tw@gmail.com
通訊地址 苗栗縣竹南鎮龍山路***

學歷

交通大學 2018/9~2020/10
資訊工程研究所|碩士畢業

中央大學 2013/9~2017/6
通訊工程學系|大學畢業

工作經歷

總年資 無工作經驗

求職條件

希望性質 全職工作
工作意願 尋找研發替代役工作
上班時段 日班
可上班日 錄取後隨時可上班
希望待遇 面議
希望地點 新竹縣市、苗栗縣竹南鎮、苗栗縣頭份市

希望職稱 演算法工程師
希望職類 韌體設計工程師、軟體設計工程師、通訊軟體工程師、演算法開發工程師

專長

Python
曾在計算機概論的課程上擔任助教，被教授指定擔任課堂上的 Python 講師，於是我有自己編制的 Python 教材與授課經驗。我也曾經擔任過 Python 家教老師。
#Python

Deep Learning
修過 Deep Learning 的課程，有課堂期末專題作品 (見附件：Multi-Style Transfer)。也曾將 DL 與 VR 做結合，在 VR 情境中可以利用 DL 來判斷使用者的手勢 (見附件：Enchanter)。

Arduino
在確定碩論題目以前，曾多次將 AR/VR 與 arduino 結合來尋找可能的碩論題目，因此我也相當熟悉Arduino。我曾嘗試將音圈馬達與 VR 的結合，希望利用音圈馬達的非線性震動造成使用者在 VR 中有方向性作用力的錯覺；實作過利用磁力計達成磁鐵單點定位；實作過穿戴式戒指 (見附件：iRing)。

Unity3D
就讀研究所時，指導教授的專業領域及為 HCI (人機互動)。實驗室的研究領域偏向 AR/VR ，因此我相當熟悉利用 Unity 設計 AR/VR app。曾實作過 PC 小遊戲 (見附件：Encanter; CoinForest)
#Unity3D #C#

UX
曾修過 UX 課程，進行了一個完整的 UX 實驗並設計出了一項 prototype。所有的流程以及結果皆在附件裡 (見附件：Love is in the Air)

C
碩一時擔任過計算機概論的助教，協助學生學會 C 語言，擔任上機課的助教設計作業/考試。
#C #C++

語文能力

英文
聽：精通 | 說：中等 | 讀：精通 | 寫：中等
TOEIC (多益測驗) 895分

自傳

【關於我】
我是黃伯凱，高雄人。喜歡唱歌、天文。我的個性活潑、熱情，大學時期參與過相當多的系上活動以及社團活動，其中也擔任過多次的組長與幹部，容易與人打成一片，也懂得如何與人溝通並分配工作。我從大學時期就開始擔任數學家教，目前已經有6-7年的經驗，這些經驗也培養出了我良好的表達能力。

【研究領域 & 經驗】
我就讀交通大學資訊工程研究所，目前口試已通過，離校手續完成之後即可畢業離校。我的論文題目為 - Eliciting Gestures on One Ear as a Centralize, Deformable Touch Interface，目的是探討在 AR 情境中所有耳上手勢的可能性（摘要附於文末），已於 9/17 投搞至國際研討會 - "ACM CHI Conference 2021"，屬於 HCI (人機互動) 的領域。在學期間，我修過 AR, VR, Deep Learning, Machine Learning, CV, UX 等等課程。我相當熟悉 AR/VR app 的設計，也懂得將其與 Deep Learning 做結合。此外，由於修過 UX 且指導教授的專業領域為 HCI，我相當清楚如何設計出使用者會喜歡的產品或者是使用介面。

個人連結：https://pkhuang-tw.github.io
Github：https://github.com/PKhuang-TW

【技能】
(1) C/C++、Python

我熟悉 C/C++、Python。碩一時擔任過計算機概論的助教，協助學生學會 C 語言。此外，我也在同一學期被教授指定擔任課堂上的 Python 講師，於是我有自己編制的 Python 教材與授課經驗。

(2) 穿戴式裝置、AR/VR、Unity、Arduino、3D model
身在 HCI 實驗室，我相當熟悉 Unity 和 Arduino。在確定碩論題目以前，曾多次利用 AR/VR 與 arduino 結合來尋找可能的碩論題目。曾經嘗試過音圈馬達與 VR 的結合，也實作過利用磁力計達成磁鐵單點定位。由於時常需要在身上穿戴裝置來進行實驗，所以我也相當熟悉 3D 列印，使用過 Blender、SketchUp、Tinkercad 等等應用程式作為設計 3D 模型的工具。（見附件：iRing, MusicBox）

(3) Deep Learning
我修過 Machine Learning 和 Deep Learning，有基本的架構知識，曾經做過 Multi-Style Transfer（見附件：Multi-Style Transfer）。再加上我熟悉 AR/VR，因此我曾和同學完成一個 VR 多人遊戲，且在其中加入了 DL 手勢辨識。我們能夠辨識玩家 VR 手把的手勢，並轉換成遊戲中的攻擊咒語（見附件：Enchanter）。

(4) UX
曾經與課堂小組完成一個整學期的 project，利用了非常嚴謹的流程進行：Interview, Affinity Chart, Persona, Lo-Fi Prototype, System Evaluation。我們建立了一個網站，內容為整個實驗流程與結果。(見附件：Love is in the Air)

【樂於學習、面對挑戰】
我相當樂於學習，也喜歡面對挑戰。就算是新的、不曾接觸過的事物，我也會挑戰自己在最短時間內學會。未來的職場生涯，盼自己能持續面對不同的挑戰、不斷進步、追求卓越，給公司帶來更多價值，與公司共同成長。

感謝您撥冗閱讀我的自傳，由衷期待能獲得貴公司的青睞，成為貴公司的一員，衷心期待能有機會參與面試。

【論文摘要】
耳朵的外部結構—耳廓，具備複雜的構造和不同程度的柔軟性，為互動設計提供了巨大的潛力。耳廓周圍的可利用性是相當豐富的：不規則的形狀能提供按鈕和滑桿的介面；其彈性賦予了開關介面相當大的自由度；耳垂的柔軟度使它可以作為觸發器被拉動。此外，與手眼互動相比，耳上手勢提供了不遮擋視線的操作，令使用者可以在視線不被遮擋的情況下與物體互動。由於感知技術的局限性，以前的研究主要是將耳朵作為觸控介面進行探索。為了探索一個以耳朵為中心、具形變能力、且不遮蔽視線的觸控介面之潛力，我們實施了針對耳上手勢的啟發式研究來探討單耳上之使用者定義手勢集。我們擴展了現有使用者定義手勢集的編譯，考慮到 n 個偏好的手勢，從而得到把手勢接受度作為首要考量的 n 階使用者定義手勢集。我們的研究結果為未來傳感器和耳上互動的設計提供了方向與建議。

【About Me】
I am PoKai Huang, my hobby is singing and I pretty like astronomy. I am lively and enthusiastic. I participated in quite a few summer camps and club activities during my college years, which also served as a team leader and cadre many times. I am easy to get along with people and know how to communicate with people and assigning works in a team. I have been a mathematics tutor since I was in college, a total of 6-7 years of experience, which has also cultivated my good expression skills.

【Research Field & Experience】
I am studying at the Institute of Computer Science and Engineering, Chiao Tung University. I have passed the oral defense and will be graduated soon. My thesis is: "Eliciting Gestures on One Ear as a Centralize, Deformable Touch Interface". The purpose is to explore the possibility of on-ear gestures in the AR environment (the abstract is attached at the end of the article). It was submitted to the international conference on 9/17 - "ACM CHI Conference 2021", which belongs to the field of HCI (Human Computer Interaction). During my studies, I took courses in AR, VR, Deep

Learning, Machine Learning, CV, UX, etc. I am quite familiar with designing AR/VR apps, and know how to integrate it with Deep Learning. Besides, since I have completed UX courses, I am quite aware of how to design a product or user interface that users will prefer.

Personal Link：https://pkhuang-tw.github.io
Github Link：https://github.com/PKhuang-TW

【Skills】
(1) C/C++、Python
I am familiar with C/C++ and Python. I served as a teaching assistant in "Introduction to Computers and Programming, NCTU", which helped students learn C programming. Also, I was appointed by the professor as a Python lecturer in the course, so I have self-made Python teaching materials edited by myself.

(2) Wearing Device, AR/VR, Unity, Arduino, 3D model
As a graduate of HCI lab, I am familiar with Unity3D and Arduino. Before deciding the topic of my master thesis, I have combined AR/VR and Arduino many times to look for possible research topics. I tried the combination of a voice coil motor and VR; implemented magnetic positioning by magnetic field sensing. Since wearing devices are often used in my experiments, I am also familiar with 3D printing in order to print architectures of my devices. I have experience with: Blender, SketchUp, Tinkercad.

(3) Deep Learning
I have taken Machine Learning and Deep Learning courses, and have basic architecture knowledge. I have done a project about deep learning: Multi-Style Transfer (see attachment: Multi-Style Transfer). In addition, since I am familiar with AR/VR, I implemented gesture recognition by using deep learning in a VR multiplayer game. The game is able to recognize gestures of players' VR controllers and convert them into attack spells in the game. (see attachment: Enchanter)

(4) UX
I completed a semester project with my classmates. We conducted an interview and built an affinity Chart, Personas, and a Lo-Fi Prototype. Finally, a system evaluation was implemented to test the feasibility of our prototype. We established a website with the entire experimental process and results. (See attachment: Love is in the Air)

【Willing to learn and face challenges】
I am quite willing to learn and also like to overcome challenges. Even obstacles I've never met or heard of, I will challenge myself to conquer it as soon as possible. In the future career, I hope that I can keep on making progress and pursue excellence. Finally, bring more value to the company, and grow together with the company.

Thank you for taking the time to read my autobiography. I sincerely look forward to having the opportunity to participate in the interview and becoming a member of your company.

【Thesis Abstract】
The external structure of the ear, or the auricle, is of complex form and has various degrees of softness, allowing a huge potential for interaction design. Opportunities for affordances around the auricle are abundant: the irregular shape accommodates interfaces for buttons and sliders; the elastic- ity gives the degree of freedom for switches; the softness of the earlobe allows it to be pulled as a trigger. In addition, on-ear gestures provide occlusion-free manipulation compared to eye-hand inter- action, which enable users to interact with objects without hand occlusion. Previous studies have primarily explored the ear as a touch interface at large owing to limitations of sensing

technology. To uncover the potentials of the ear as a centralized, deformable, occlusion-free, touch interface, we conducted a user elicitation study of on-ear gestures. We extend the existing compilation of consensus gesture sets to account for n first preferable gestures, leading to the n-rank consensus gesture set that puts acceptance of gestures in the first place. Our findings provide guidance for designs of future sensors and on-ear interaction.

專案成就

Multi-Style Transfer

2019/5~2020/7

This project is aimed to transfer different semantic objects in one image into different styles.

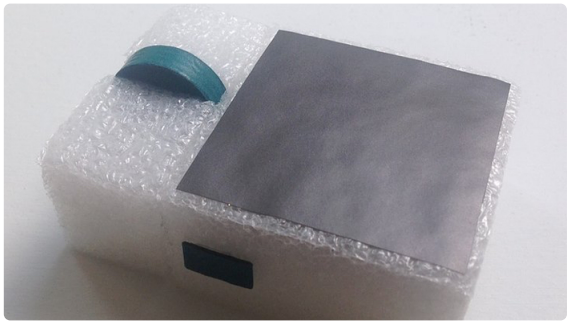
前往查看 >

Enchanter

2019/4~2019/6

This is a Multiplayer VR Game with Gesture Recognition. Players fight against each other by casting magic spells drew by their VR controller.

前往查看 >

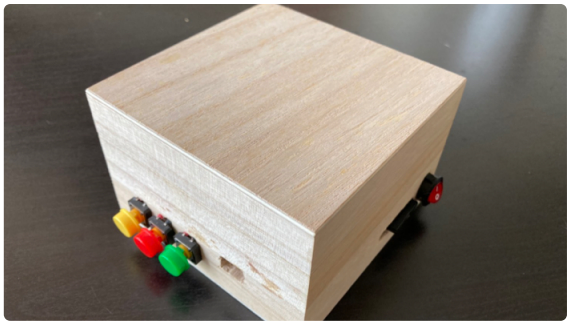


Love is in the Air

2018/9~2019/1

Some of the couples might be disappointed by the distance. We conduct an interview and build up an affinity wall to solve this problem. A special mouse is our design solution after creating personas.

前往查看 >

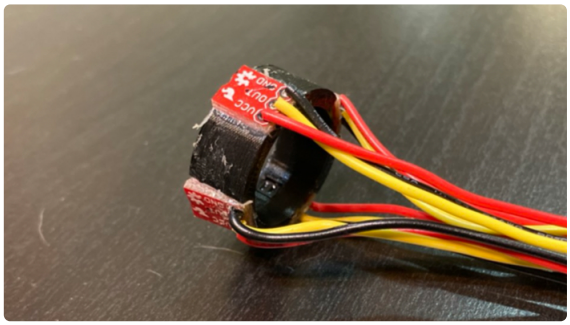


Music Box

2020/1~2020/3

This is a Self-Made Music Box built with Arduino. Music will be read through SD module and output by a 8-Ohm 2W speaker. Buttons on the box supports Play/Stop, Next/Previous.

前往查看 >



iRing

2019/11~2019/12

This is a intelligent ring using Infrared Reflection. 4 IR sensors are attached on the 3D-printed Ring. iRing is able to recognize current states in real time.

前往查看 >

CoinForest 2019/9~2019/10

This is a PC Game built by Unity 3D. There are 10 coins in the world, player can either play again or exit after collecting all the coins.

前往查看 >