**MICHAEL JANNAIN**

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**EDUCATION:**

**San Diego State University San Diego, CA**

***Bachelor of Science in Computer Science*  May 2016**

***Bachelor of Arts in International Business with Emphasis in Mandarin*  May 2016**

**SKILLS:**

* Python; C/C++/C#; Java; Swift; Perl; HTML; CSS; JavaScript; SQL
* Microsoft Office Suite; Adobe Creative Suite; Windows XP/Vista/7/8/10; Unix; Linux; Mac OS X
* Virtualization: VMWare; Parallels; Bridged vs. Host-Only Network; Backup/Transfer of Virtual Machine
* Security: Types of Threats; Attack Methodologies: Man in the Middle, Fizzing, DDOS; Defense Methodologies: Defense in Depth
* Image Processing: OpenCV (HSV Filtering, Contour Analysis, Shape & Object Detection, Pattern Recognition)
* Embedded Systems: Serial Communication (UART, RS232); PIC24 MPLAB
* Control Systems: Linear/Nonlinear Analysis; Linearization; Kalman Filter; PIDs
* Mobile App Development: iOS 8 (Swift); Web Development: Django, MySQL, AngularJS, HTTP Requests (GET/POST)
* Unity; Tkinter; Microsoft Visual Studios; XCode; Android Studio; SolidWorks (CAD); Git; Subversion; Eclipse; Keil µVision5; IAR Embedded Workbench
* Unix Shell; Threading; Multiprocessing; TCP/IP; Operating System Design; Linear Algebra; Transformation Matrices; Agile Development (XP, SCRUM)
* Experience with ARM/CORTEX processor boards and microcontrollers
* Strong communication skills, verbal and written
* Languages: Chinese (Mandarin); Spanish; English
* Black Belt (Taekwondo)

**EXPERIENCE:**

**empowr** - San Diego, CA | June 2016 - Present

***Lead Software Developer/Lead Mobile Developer***

* Developed fraud detection engine that detects cycles in a map of nodes (userbase).
* Full stack engineer – responsible for maintaining front end and back end components (front-end: C#, JavaScript, CSS, HTML; back-end: TSQL on ASP.NET).
* Develop engines and business entities to access and cache data at the data access level and apply high level logic, such as rate limiting, with C# thread safe consumer/producer engine logic.
* Developed mobile applications for both Android and iOS using Xamarin Studios using C# (10,000-60,000 users per application).

**Mechatronics Club SDSU** - San Diego, CA | January 2015 - Present

***Software Team Captain***

* Lead software developer of San Diego State University’s Mechatronics Robotics Club that won *1st place out of 38 international teams* in the International RoboSub competition.
* Mentor to other students while developing image processing and embedded code for both RoboAir and RoboSub divisions.
* Contributed to the main GUI that operates the submarine/AUV, writing a Communication tab to interface with daughter boards using Python, Tkinter, and UART (TX/RX) Serial communication.
* Designed new software elements such as image recognition, shape recognition, socket encoding and transfer of .JPG/.BMP files, and video and device-to-device communication for the GUI that operates RoboAir's UAV.

**Apple Inc.** - San Diego, CA | May 2013 – January 2014

***CPU Advisor***

* Troubleshooting of OS X devices includes data transfer, password recovery, driver issues, boot issues, and Wi-Fi/Bluetooth problems.
* Passed internship certification program for software, hardware, and network components troubleshooting.

**PROJECTS:**

**Attack Lab – challenge to gain root access on various systems in a live environment using Kali Linux virtual machine:**

* Hardened Kali Linux VM using apt-get to install packages and locking down any unwanted open ports.
* Probed ports of systems using telnet to assess services running on ports and begin to open up the attack surface.
* Accessed port services launching brute force attack with shell script to guess username and passwords of accounts.
* Researched and launched exploits in live time using Metasploit as the main research database.

**Swift iOS Mobile Wallet:**

* Developed asynchronous REST API (with PromiseKit on app side), deployed on AWS Ubuntu Linux instance with Apache.
* Integrated Uphold finance API, able to transfer and send money in 38 different currencies.
* Utilized MVC (model, view, controller) architecture to encapsulate various sections of the applications and follow iOS standards.
* Website: http://www.youpei.me/

**4 Degree of Freedom (4DOF) underwater robotic arm for AUV:**

* Created DH table for home configuration of claw and derived forward and inverse kinematics.
* Implemented transformation matrices and linear algebra to determine where the claw should grab an object.
* Calibrated camera matrix using OpenCV to use only a single camera to obtain depth given width and height of object.
* Designed End Effector (EE) in Solidworks (CAD) and water jetted from 6061 aluminum.
* Experimented with novel gripper materials such as silicon, neoprene rubber foam, in order to design a lightweight claw.

**Designed software for the UAV to process images, send live .JPG/.BMP images to the ground station, and control onboard servos:**

* Created the RoboAir Graphical User Interface (GUI) from scratch using Python and Tkinter.
* Designed image processing techniques to segment images, detect contours, and detect shapes using OpenCV.
* Wrote encoding module to transfer .JPG and .BMP files over socket connection to the ground station via bytestream.

**GITS – Graffiti Incident Tracking System, a Django powered MYSQL online website database and offline graphical user interface (GUI):**

* Created online information portal with user account login system for the submission of graffiti incidents by cleanup crew.
* Designed MYSQL database behind the web portal to store incident information separate classes for law enforcement and crew.
* Wrote front-end code using Django HTML, CSS, AngularJS, and the MVC (model, view, controller) architecture.
* Implemented socket connection to transfer information from online database to offline GUI made with Python and Tkinter.
* Designed graphing system with Python and Matplotlib to show incidents based on their GPS coordinates.