

Tyler Dillon Walker

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Most recent supervisor:
Do not contact – Still Employed

Education

Brown University

August 2015 – 2017

Master of Science, Electrical Sciences and Computer Engineering.

- **Relevant Courses:** Implantable Devices, Biophotonics, Engineering Physics II, Image Understanding, Statistical Inference, C++, Digital Signal Processing

Cornell University

June 2011 – 2015

Bachelor of Science, Independent Engineering Major (Brain Computer Interface). Primary E.C.E. focus and secondary focus in BIONB.

- **Scholarships:** Pre-Freshman Summer Program Scholarship, Leadershape Program Scholarship, Ryan Scholar Scholarship, LSC scholarship (twice), Boy Scouts of America Program Scholarship (three times).
- **Relevant Courses:** Neural-Electronic Interfaces, Brain Control of Movement, Neurophysiology, Comparative Physiology, Intro to Neuroscience, Signals and Systems, Embedded Systems, Microcontrollers, Microelectronics, Digital Logic, Circuits, Engineering Design Projects.

Relevant Work Experience

3D Modelling, Animation, Game Dev - Remote

Feb 2018 – Present

Multiple Indie (Forecast, Netcode Warriors, Samurai's Edge, others)

[ArtStation](#) - [Current UE4 Project](#) – [Example Animation](#) - [Example Blender Rig](#) – [Another Example Rig](#)

- [Blender addon development using Python](#). Develop 3D models, control rigs, animations, and write supporting python scripts for unique character control needs. Typically for special forward and reverse kinematic constraints.
- Blueprint and C++ programming in Unreal Engine 4/5 for character control, movement, gameplay mechanics, physics simulation. Engine source modification. Graphics development (including shader programming). Addon development. Python Scripting. Typically single project contracts.

[Product Engineer](#), San Jose, CA

Sept 2019 – Present

mCube, Inc., MEMSIC, Inc.

- Direct roles completing electrical, hardware, and software characterization, evaluation, and improvements for mCube's monolithic MEMS.
- Responsibilities included: debugging with oscilloscopes, logic analyzers, accelerometer and gyroscope testing platforms, software techniques and simulators. System level software development in embedded environments like RPi. Programming in Python, C, Matlab, LabView. Source Control.
 - Design and failure analysis to identify root cause and suggest improvements
 - Developed detailed characterization reports to present findings to cross-functional audience

Projects:

- Built Python library and GUI on LabJack+Windows for several critical characterization tasks across multiple MEMS and CMOS designs for both Gyro and Accel.
 - Voltage and current sweeps, trimming for band gap/iBias/clock, filter analysis and software design for analogue/CMOS dependent designs, drift analysis, calibration, data parsing + presentation and database storage
 - Improved test bench workflow by developing device queries on LabJack – Ability to select I2C and SPI comm – Data Stream – Part Trim – register R/W – voltage and current meas
- Conducted Gyro investigations to determine best settings for client samples to reduce noise and power consumption.
 - Registers identified as problematic helped with Analog and MEMS optimizations based on what those registers control.
- Established SPI interface with Gyro using Raspberry Pi
 - The goal was to allow higher temporal resolution for characterization, because current tests were limited by I2C comm speeds.
- Developed functional Lowpass filter model in Labview that can determine LPF coefficients based on physical characteristics of different hardware filter implementations.
 - My models produced more accurate roll-off curves than previously achieved for F_c
 - This removed an existing bottleneck and enabled coefficient calcs on bench in seconds.
- Python Automated Processing for large datasets from SPEA and bench test tools

- Pulled data from MySQL / Tango databases, parsed it, and automated repetitive calculations that were being done manually.

Applications Engineer, Ithaca, NY

December 2018 – August 2019

Kionix, Inc.

Contact: Alex Chernyakov — achernyakov@kionix.com

- Responsible for customer-facing hardware/electrical and software validation, testing, documentation, support, use-case, and applications of Kionix MEMS devices including accelerometers, gyros and magnetometers. Also responsible for promotion of parts via engineering demos at major expos like CES, Sensors Expo, etc.
 - Improved universal query application in C for Raspberry Pi to detect any of Kionix's devices, adjust register settings, select comm protocol, buffering, filtering, and more. Included error detection with console display, as well as a debug mode. All configurable from the command line.
 - Major release of KX13x parts—responsible for validation such as noise/thermal/communication tests, ASIC engine validation, and more; hardware/software application development and documentation for the advanced engines in these parts; support for evaluation parts; and more.

Projects:

- Automotive Demo for Sensors Expo with our parent-company, ROHM Semiconductor. Designed and demonstrated applications in road noise cancellation, accident detection, driver profiling, lap counting, traffic detection, localization, anti-theft, active suspension, vehicle orientation, and more.
- Finished a Bluetooth music controller application, controllable by tap and tilt input.

Projects

MHA Beyond Game Project:

February 2018 – Present

Beyond Studios

Lead team of over 30 international 2D/3D artists + animators, game designers + developers, programmers, sound engineers, [voice actors](#), story and concept writers, VFX artists, in developing multi-platform games.

- [Model](#), [rig](#), [animate](#) characters using Blender3D and Photoshop. Also coordinate with other artists and animators to reproduce the quality of my models for consistent art style and visual fidelity.
- Import models to Unreal Engine and develop control and animation logic, game mechanics, physics, VFX, UI, and more.
- Lead promotional efforts to inform people about our work, and build excitement.
 - The initial promotional trailer has nearly 400k views, and millions of impressions on YouTube. The game itself has been reviewed by dozens of major social influencers, generating tens of millions of additional views. And the alpha demo has been downloaded over 800,000 times in the period of one month.

Master's Research in Borton Nueromotion Lab (BNML):

December 2015 – December 2016

Brown University

Designed and assembled data routing and master clock system for use by the BNML.

- Designed to use neurological data from several research projects simultaneously, timestamp and decode that data, and distribute it to the proper equipment.

Implantable Devices Project

Summer 2016

Pressure Responsive, Hybrid Stimulation Solution for Improved Chronic Pain Relief with Reduced Paresthesias.

Biophotonics Project:

Spring 2016

Designed LabView software module to automate a motorized translation system for the OCT.

Intel-Cornell Cup Project Team (ECE Team Lead):

September 2012 – May 2015

Cornell University

Contact: Dr. David Schneider—Faculty Adviser—(607) 254-5403

Coordinated with over 60 Undergraduate and Master's Cornell Engineers to host a national, annual college-level embedded design competition, sponsored by Intel. Built and documented embedded design examples for student teams to overcome difficult engineering problems on their way to inventing embedded technology for the competition.

- **Project Contributions:** Directed the assembly of electrical systems for a virtual reality roller coaster based on a small-scale model. Also directed continued improvements to R2D2 and C3PO replicas and 4-wheeled Modular Robots (Modbots). Oversaw design and documentation of sensor selection, signal processing and localization, power systems, motor selection and control, applications of FPGA's, and development on various microcontrollers including the Intel Edison and Arduino.

Microcontrollers Project:

Fall 2014

Designed auto-ranging digital multimeter gloves with the AVR1284p MCU.