MARKO VEJNOVIĆ

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EDUCATION

Northwestern University *September 2019 - Present*
Bachelors in Electrical Enginerering
Department of Electrical Engineering
Bachelors in Computer Science
Department of Computer Science

United World College Changshu China *August 2017 - May 2019*
International Baccelaurate
Overall Percentage 82.2%

EXPERIENCE

UNAING Dec 2018 - Jan 2019
Freelance Web Developer *Banja Luka, Bosnia & Herzegovina*

· UNAING is an architectural company based in Banja Luka, Bosnia & Herzegovina, founded in 2001 with the goal of building upon the culture of construction. UNAING does everything from architectonic design to creating urbanistic plans.
· I worked at UNAING as a Web Developer. Working closely with the company, I designed a React-based website. The website is available at www.unaing.com.

Zoran Kuvać August 2019 - September 2019
Freelance Web Developer *Banja Luka, Bosnia & Herzegovina*

· Zoran Kuvać is a professional classical guitar luthier. He required a website update.
· I worked to rewrite Zoran Kuvać's website in React. The website is available at www.zorankuvac.com.

PROJECTS

DIY Gibson Flying V Clone

· This project was a successful attempt at making a completely customized guitar by hand. All the elements on the guitar were made by hand, bar the tuning pegs and the electronics. Two AlNiCo pickups were wound by hand - one which produced a dull sound with swept mids, and one which produced a vibrant, bluesy and very vocal tone.

Pickup Winder

· For the Flying V Project a Pickup Winding Machine was required. This was done by using an Arduino and an H-Bridge to control a motor driven shaft with an encoder. This enabled accurate measurements of the number of turns. The pickup wire was tightened manually.

Ikap

· Ikap is a solution for managing the use of a kitchen in United World College Changshu China. The solution solves both time management of the kitchen and inventory tracking.

USB Arduino-based Portable Oscilloscope

· The portable oscilloscope, awarded with the Gold Prize on Tesla Fest 2016, is a device which enables waveform analysis on the go by connecting it to an Android computer (tablet or phone), with up to 20kHz sampling rate.

Automated Camera Slider

· One of the issues present with stop-motion animation is creating camera motion. The Automated Camera Slider is a cheap and robust solution for this problem. Employing both a manual mode and an automated mode (integrated with the de-facto industry standard Dragonframe), the Automated Camera Slider enables the animator to create camera motion effects with ease.

AWARDS

Portable Science Experiments Coiffer	Gold Prize
2014	*INOST 2014*
Arduino Camera Slider	Silver Prize
2015	*INOST 2015*
USB Arduino-based Portable Oscilloscope	Gold Prize
2016	*Tesla Fest 2016*
System for Organizing Small Aeroclubs	Silver Prize
2017	*INOST 2017*

RESEARCH

The Frequency Response of the MXR Microamp Amplifier   July 2018

· The MXR Microamp amplifier is used as a guitar pedal which boosts the input signal and must have a flat frequency response. The goal was to identify whether this is so.
· Paper available at: `https://github.com/markovejnovic/freq-response-microamp/raw/master/tex/freq-response.pdf`

The Effect of Pickup Position on the Response of an Electric Guitar   October 2018

· The goal of this research paper was to investigate the effect of pickup position on the frequency response of its harmonics.
· The goal was not successfully achieved either because of poor harmonic identification, inconsistent waveform deterioration, inconsistencies when plucking the string.
· Paper available at: `https://github.com/markovejnovic/Pickup-Position-Effects/raw/master/tex/relation-pickup-distance.pdf`

TECHNICAL ABILITIES

Drawing, Modelling & Analysis	AutoCAD, Solidworks, EagleCAD
Office Software	Microsoft Office
General Languages	C, C++, C#, Objective-C, Java, Javascript, Python, PHP, Kotlin, Bash, Powershell
Data Processing	Numpy, Scipy, TensorFlow, Matlab
Web Technologies	HTML, CSS, JS, Typescript, React, Flask, PHP, Node.js, REST, HTTP, Sockets
Mobile Technologies	Android, iOS, watchOS
Database Technologies	MySQL, PostgreSQL, SQLite
Data Description Technologies	XML, JSON
Typesetting Systems	LaTeX
Embedded Systems	Arduino, AVR, PIC (mikroC)
System Administration	*nix System Administration
Design and Film Technologies	Photoshop, Illustrator, Audition, Premiere Pro
Desktop Technologies	GTK, Qt, Winforms, MFC, Win32, Swing
Tools	Git, Vim