

# Robert D. Boney

*Undergraduate, Computer Science*

*Department of Integrative Physiology and Neuroscience*

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*harmonichemispheres.com*

## EDUCATION

**Washington State University Vancouver (WSUV)**

*B.S. Computer Science (Expected)*

**Timeline:** Fall 2014 – Spring 2019

**Cumulative GPA To Date:** 3.25

## WORK EXPERIENCE

**Coffin Lab, WSUV**

*Researcher & Programmer*

**Fall 2014 - Present**

- Developed calculators, data visualizations, and bioinformatics solutions for ongoing projects.
- Sole programmer in the auditory research lab.
- Lead developer for a bioinformatics project analyzing protein sequences from mammals and non-mammals, seeking differences in functional domains for proteins in non-mammals critical for auditory regeneration which could be further studied as a solution to hearing loss.
- Mentored a high school intern working on our regeneration project in over the summer
- Fixed issues with lab machines including incubators and lab computers
- Performed drug discovery experiments using zebrafish to identify novel compounds that protect hearing.

## PERSONAL PROJECTS

- **Protein Analysis Scripts:** (Python / Perl) Script library for protein comparison projects. Includes site by site analysis, Ensembl database querying, NCBI database querying, dataset cleaning with pandas, multithreaded implementation of multiple sequence alignment using MUSCLE and reciprocal blast computation and analysis.
- **Todu:** (Python) Command line application for managing a to-do list able to add tasks, remove tasks, track days till due date, sort by name or due date, flag tasks with update memos, and categorize tasks by grouping.
- **Serial Dilution App:** (Javascript / Html) Frontend web app to calculate concentrations for a serial dilution given a stock concentration. This app is now the signature way our lab calculates serial dilutions.
- **Time Point App:** (Javascript / Html) Calculates a time point table for n tasks with multiple timers and updates table with highlights when time points are near, far, or passed.
- **harmonichemispheres.com:** (Javascript / Html) Built the website for my portfolio of music and scientific work.

## TECHNICAL SKILLS

**Proficient Languages:** Python, Bash

**Intermediate Languages:** C#, Perl, Javascript, HTML 5, CSS 3

**Tools:** Git, Github, Unity 3D, Jupyter Notebooks, File Zilla, NCBI Entrez Api, Ensembl Perl Api, AWS EC2

**Operating Systems:** Linux/Raspbian, OSX, Windows

**DTC Technology:** Pixelmator, Affinity Design, Affinity Photo, Photoshop, Ableton Live 9 (music production),

## ACTIVITIES

- **Music Production / Composition:** I have played piano since 10 years old. I was a free lance music producer and composer in Los Angeles, CA for 6 months after graduating high school, and wrote electronic music and film soundtrack, and continue to write/produce music today under the alias, Harmonic Hemisphere
- **Graphic Design:** I've designed all the artwork for my music projects as well as designed logos for some music producers.

## PUBLICATIONS

- **Natural bizbenzoquinoline derivatives protect zebrafish lateral line sensory hair cells from aminoglycoside toxicity.** Matthew Kruger, **Robert Boney**, Alexander Ordoobadi, Thomas F. Sommers, Josef G. Trapani, Allison B. Coffin (*Published 2016*). *Frontiers in Cellular Neuroscience*. doi: 10.3389/fncel.2016.00083

## CONFERENCE ABSTRACTS

- **Robby Boney**, Allison B. Coffin, Phillip M. Uribe, (2016) Is the lack of mammalian hair cell regeneration linked to evolutionarily dependent amino acid changes within functional protein domains? Association for Research in Otolaryngology, 2016 40th Annual Midwinter Meeting. Baltimore Marriott Waterfront, Baltimore, MD.
- **Robby Boney**, Matthew W. Kruger, Bruce Blough, Allison B. Coffin (2016) Plant-derived bisbenzylisoquinoline derivatives protect zebrafish lateral line hair cells from aminoglycoside damage. Society for Developmental Biology, 2016 Northwest SDB Regional Meeting. Friday Harbor Laboratories, San Juan, WA.
- **Robby Boney**, Matthew W. Kruger, Allison B. Coffin (2016) Plant-derived bisbenzylisoquinoline derivatives protect zebrafish lateral line hair cells from aminoglycoside damage. Association for Research in Otolaryngology, 2016 39th Annual Midwinter Meeting. Manchester Grand Hyatt, San Diego, CA.
- Matthew W. Kruger, **Robby Boney**, Allison B. Coffin (2014) Plant-derived bisbenzylisoquinoline derivatives protect zebrafish lateral line hair cells from aminoglycoside damage. Society for Developmental Biology, 2014 Northwest SDB Regional Meeting. Friday Harbor Laboratories, San Juan, WA.

## AWARDS

- 2017 – WSU Vancouver Research Showcase: 1st place undergraduate podium talk
- 2017 – Auvil Undergraduate Research Fellowship Award for 2017/2018
- 2016 – “Best Poster – Student’s Choice” Award at the 2016 Northwest Regional Developmental Biology
- 2016 – WSU Vancouver Neuroscience Mini-Grant
- 2015 – WSU Travel Grant