Aditya Krishna

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Professional Summary

Electrical and Computer Engineering PhD student at the University of Washington studying signal processing, machine learning, acoustics, and auditory neuroscience, to develop biologically-inspired sensing algorithms.

Education

University of Washington Seattle, WA
Bachelor of Sciences, Electrical Engineering (Neural Engineering & Signal Processing) *June 2024*

- Overall GPA: 3.78 / Major GPA: 3.90

Research Experience

Undergraduate Researcher September 2021 – June 2024
Advisor: Professor Wu-Jung Lee, Applied Physics Laboratory *Seattle, WA*

- **Main Project:** Used data-driven methods to investigate subsampling for passive acoustic monitoring of bats
- **Data Collection:** Led team efforts between June - December 2023 using **Audiomoths** to record 24-hr ultrasonic acoustic data (roughly 16TB) from 6 locations across a nearby urbanized natural area
- **Soft Skills:** Supervised training of new lab members and wrote instructional material – uploaded to **GitHub** – to assist fieldwork for collecting acoustic data using Audiomoth recorders.

Capstone Projects

These were senior capstone projects that needed to be ideated, proposed, and prototyped over a 10-week quarter.

MyoGrind: Bruxism Management Device (Showcase Winner) Spring 2024
BIOEN 461: Neural Engineering Tech Studio by Professor Kim Ingraham *University of Washington, Seattle, WA*

- Led the design of a system that used **Arduino** and **MyoWare** muscle sensors to record EMG from the masseter muscles and detect teeth grinding to notify users via bluetooth, LED indicators, and vibro-tactile stimulation.
- Our team won the final showcase which involved industry experts and medical professionals acting as judges to evaluate our product's value proposition, customer discovery process, and live prototype demo.

WeatherPatrol: TinyML Rain Prediction using Arduino Nano 33 BLE Spring 2024
EE 400A: TinyML by Professor Radha Poovendran *University of Washington, Seattle, WA*

- Developed and deployed a **TinyML model (F-1 score $>$ 0.8)** on the **Arduino Nano 33 BLE** to read temperature, pressure, and relative humidity from the environment and predict if there would be rain in the next 30 minutes.
- Programmed Nano to invoke **TensorflowLite** model and broadcast predictions over **Bluetooth Low-Energy (BLE)** to bluetooth central devices and equipped system with rechargeable batteries to make device fully deployable.

Selected Conference Presentations

Krishna A, Lee W-J. (2024) Investigation of Duty Cycles for Measuring Activity in Passive Acoustic Bat Monitoring. The 186th Meeting of the Acoustical Society of America, Ottawa, Ontario, Canada, May 13-17, 2024.

Honors and Awards

Undergraduate Research Conference Travel Award Office of Undergraduate Research
University of Washington, Seattle *Spring 2024*

ECE DEI Conference Travel Award Electrical and Computer Engineering DEI Committee
University of Washington, Seattle *Spring 2024*

Mary Gates Endowed Research Scholarship Mary Gates Endowment for Students
University of Washington, Seattle *Winter 2023*

Technical Skills

Programming Languages: Python, MATLAB, Arduino IDE, Java, LaTeX
Software Libraries: Pandas, SciPy, NumPy, TensorFlow, Keras, scikit-learn
Software Development: Bash, Git/GitHub, VSCode, Conda/Mamba, Jupyter

Research Symposiums

26th Annual Undergraduate Research Symposium May 19th 2023

University of Washington *Seattle, WA*

- Presented on preliminary research on duty cycle-based strategic subsampling for the passive acoustic monitoring of bats to reduce data management costs while collecting representative data.

25th Annual Undergraduate Research Symposium May 20th 2022

University of Washington *Seattle, WA*

- Presented preliminary results of using Bat Detective, a **CNN**-based bat call detector trained on bat calls from Romania and Bulgaria, and explored its success in detecting bat calls collected from Seattle.