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To: include all managers (e.g., ematson@purdue.edu, ahsmith@purdue.edu, lhiday@purdue.edu and lee3450@purdue.edu)
From: What is today's lunch?

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Summary

- We thought about a paper subjects roughly: UAV classification using acoustic nodes.
- We individually read 2 papers through and make a summary of them. Next Wednesday, we planned to have a meeting with Mia(Purdue Ph.D, an author of a paper "A Feature Engineering Focused System for Acoustic UAV Detection").

What 'What is today's lunch?' completed this week(our team name: What is today's lunch)

- We've decided a general subject: UAV classification using acoustic nodes. It is tentative and will be developed further when we meet Mia next Wednesday.
- Below are papers we read through and summarize. We will explain summaries in a meeting with Mia.

- Convolutional Neural Networks for analyzing Unmanned Aerial Vehicle Sound
  - Preprocessing using pre-emphasis filter and Detecting loaded UAV using CNN
- Single Node Detection on Direction of Approach
  - Detecting of drone approach, Estimating of accuracy and inference time
- 35 GHz FMCW Drone Detection System
  - Usual drone and military drone has different max velocity. This paper detects and tracks drone using radar.
- Malicious UAV Detection Using Integrated Audio and Visual Features for Public Safety Applications
  - Using Integrated Audio and Visual Features to detect malicious UAV.
  - Combining MFCC features and AlexNet performed better than individuals, also this is cost-effective and small datasets are acceptable.
- Multi-label UAV sound classification using Stacked Bidirectional LSTM
  - Loaded UAV sound classification using LSTM.
- Stevens Drone Detection Acoustic System and Experiments in Acoustics UAV Tracking
  - UAV acoustic detection tests were conducted using various acoustic arrays and directional microphones. And we can search classification, tracking, localization too.
- CNN ARCHITECTURES FOR LARGE-SCALE AUDIO CLASSIFICATION
  - CNN used in image classification do well on our audio classification task
- An Audio Classification Approach Based on Machine Learning

- methods and techniques of audio event detection and semantic analysis in complex audio environment

Things to do by next week

- We will make a discussion concerning paper subject with Mia based on literature review we've conducted (in a meeting with Mia next Wednesday).

Problems or challenges:

- How to set up an acoustic node?
- How to save and get the dataset?
- Is there UAV(drone) and Acoustic node that we can use?

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