

# **XRAY**

## **1. Token Count:**

- Transcript used 647/8192 tokens.
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## **2. Subject Line:**

**Discussion on X-ray Dataset Processing and Image Count Discrepancies**

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## **3. Meeting Summary:**

This meeting discussed the differences between two X-ray datasets—manually processed and automatically processed—focusing on image count discrepancies. The team also explored increasing the dataset size for better model training performance.

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## **4. Key Points:**

- Discussion on X-ray datasets and their processing methods.
  - Comparison of manually processed versus automatically processed image counts.
  - Manually landmarked, manually processed dataset has 667 images, while the automatically processed set has 351 images.
  - Concern about having fewer images in the automatically processed set.
  - Mention of subgroups within the dataset that lack sufficient images.
  - Need for more training data for individual models.
  - Agreement to work on increasing the data for model training.
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## **5. Company/Project Names:**

<b>Company/Project Name</b>	<b>Description</b>	<b>Associated Company/Contact</b>
Team X-ray	Project focused on processing X-ray images	Jonathan J. Suh, Ayush Parikh

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## **6. Persons Mentioned:**

<b>Name</b>	<b>Description</b>	<b>Company/Associated</b>
Jonathan J. Suh	Speaker discussing dataset processing details	n/a
Ayush Parikh	Speaker concerned about dataset discrepancies	n/a
Mercedes	Mentioned in reference to subgrouping data	n/a

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### **7. Metrics / Numbers Mentioned:**

1. **667 files** - Manually landmarked and manually processed images.
  2. **351 files** - Manually landmarked and automatically processed images.
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### **8. Action Items:**

#### **Responsible Party: Jonathan J. Suh**

- Work on increasing the amount of training data for individual models.

#### **Responsible Party: Ayush Parikh**

- Follow up on the need for more images in the automatically processed dataset to match the manually processed one.
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### **9. Token Count of Response:**

- Response used 522/8192 tokens.

## **ANOLE CLASSIFIER**

### **1. Subject Line:**

Improving Image Classification and Data Sampling Techniques for Machine Learning

### **2. Two-Line Summary:**

This meeting focused on challenges with data imbalance in training datasets and strategies for improving image classification through oversampling, undersampling, and transformations. The discussion also covered dataset quality issues, and next steps include completing dataset downloads and setting up neural networks for training.

### **3. Key Points:**

- Challenge with imbalanced data in the dataset, leading to difficulties in training models effectively.
- 27 hours were spent downloading data; efforts are being made to optimize this process.
- Techniques discussed: oversampling/undersampling, transformations (rotation, translation), and applying higher costs for misclassification of minority classes.
- Difficulties in classifying certain images due to poor quality or indistinct features (e.g., lizards blending into the background).
- Consideration of different model types for handling classification issues.
- Mention of trying transfer learning and setting up a custom neural network as next steps.

#### 4. Companies / Projects Mentioned:

Company / Project Name	Description	Associated Company / Contact
Cybering kernel	Data/images being downloaded for machine learning training	n/a
Claycombe	Framework allowing sampling techniques	n/a
Carolinan species	Example of species classification with dataset challenges	n/a

#### 5. People Mentioned:

Name	Description	Company (if applicable)
Jacob Dallaire	Leading the technical discussion, working on dataset and image classification improvements	n/a
Jonathan J Suh	Participant in the discussion, providing feedback on photo quality	n/a
Ayush Parikh	Participated briefly in the meeting	n/a
Danny	Referenced in the conversation, asked for any final concerns	n/a

#### 6. Metrics / Numerical Data Mentioned:

1. It took 27 hours to download the two datasets.
2. One of the data classes makes up 90% of the dataset, causing an imbalance in training.

#### 7. Action Items:

**Jacob Dallaire:**

- Complete downloading the last taxons.
  - Set up a neural network, possibly trying transfer learning and a custom network.
  - Implement improvements to parallelize the dataset download process.
  - Work on oversampling the minority classes and undersampling majority classes in the training process.
  - Apply data transformations (rotations, translations) to increase the training dataset size for minority classes.
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## **Deep Lab Cut**

**1. Subject Line:**

Progress Updates on Deep Lab Card Project and Lab Computer Setup

**2. Two-Line Summary:**

Wang Ruiqing provided a status update on their ongoing Deep Lab card project, mentioning progress on video frame extraction and labeling. Jonathan Suh discussed the ordering of a lab computer with high specifications for future remote access and heavy computing needs.

**3. Key Points and Repeated Topics:**

- Wang Ruiqing is working on the Deep Lab card project.
- Progress includes extracting video frames and labeling.
- Expecting more data by next Monday.
- Jonathan Suh announced the order of a lab computer with advanced specs (i9 processor, GTX 4090).
- Remote access for computing tests will be available once the computer arrives.

**4. Company / Project Chart:**

<b>Company / Project Name</b>	<b>Description</b>	<b>Associated Company / Contact</b>
Deep Lab Card Project	A project involving video frame extraction and labeling	Wang Ruiqing
Lab Computer (unspecified model)	New high-spec computer for remote access and heavy computing	Jonathan Suh

**5. Person Chart:**

<b>Name</b>	<b>Description</b>	<b>Company</b>
Wang Ruiqing	Working on the Deep Lab card project	n/a
Jonathan Suh	Announced lab computer purchase for team's remote access	n/a

#### **6. Metrics / Facts with Numbers:**

1. Lab computer with an i9 processor.
2. Lab computer includes a GTX 4090 graphics card.

#### **7. Action Items:**

##### **Wang Ruiqing:**

- Continue labeling and gathering data for the Deep Lab card project.
- Expect to have more data by next Monday.

##### **Jonathan Suh:**

- Set up remote access for the team once the lab computer arrives.

## **Jaw Segmentation**

### **1. Subject Line:**

#### **Discussion on Lizard Jaw Segmentation Project and Lab Computer Setup**

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### **2. Two-line Summary:**

The meeting covered an update on the Lizard Jaw segmentation project, highlighting progress and challenges related to data segmentation and alignment. Additionally, a lab computer with advanced specifications was ordered for remote computing tasks.

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### **3. Key Points and Repeated Topics:**

- Lab computer ordered with high specs (i9 processor, GTX 4090) for remote access.
- Update on the Lizard Jaw segmentation project.
  - Issues with lower jaw and teeth segmentation due to data alignment.
  - Solution involves aligning the head with the coordinate system for clearer visualization.

- Proposed 3-step segmentation process: rotation, cropping, and machine learning-based segmentation.
- Literature review ongoing to explore segmentation methods using neural networks.
- Considering adapting existing dental segmentation models for lizard scans.

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#### 4. Company / Project Mentions:

Company / Project Name	Description	Associated Company / Contact
Lizard Jaw Segmentation	Project focused on segmenting lizard jaw and teeth in scans.	Philip G. Woolley
Dental Segmentation Module	3D segmentation network pre-trained on human images.	n/a
Slicer	Software used for image segmentation and visualization.	n/a

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#### 5. Specific Persons Mentioned:

Name	Description	Company Associated
Jonathan J. Suh	Speaker, overseeing but not directly involved in the project.	ADDMAN
Philip G. Woolley	Project lead on Lizard Jaw segmentation project.	ADDMAN
Ruiqing Wang	Participant in the meeting.	n/a

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#### 6. Facts / Statements Involving Numbers:

1. **Processor:** Ordered a computer with an Intel i9 processor.
2. **Graphics Card:** Computer has a GTX 4090 graphics card.
3. **3-step process:** For segmentation: rotation, cropping, and machine learning.

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#### 7. Action Items:

**Jonathan J. Suh**

- Confirm when the lab computer arrives and notify the team.

**Philip G. Woolley**

- Continue working on Lizard Jaw segmentation.
- Test machine learning algorithms for segmenting jaw and teeth.
- Explore using Slicer's dental segmentation module for lizard scans.
- Continue literature review on segmentation methods.