Classifier

1. Subject Line

Lizard Detection Model Refinement and Dataset Preparation

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2. Two-Line Summary

Jacob Dallaire presented his progress on improving object detection for lizards in complex images, using transfer learning and annotating 1000 images to train a custom model. The team discussed difficulties with existing object detection models and plans for future model iterations.

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3. Key Points

- Jacob Dallaire is refining an object detection pipeline focused on isolating lizards in complex images.
- Current results are unsatisfactory due to background complexity and the small size of lizards in images.
- Dallaire is exploring transfer learning with the MobileNet V2 model and object detection tools from RoboFlow.
- Pre-existing models failed due to inconsistent results, such as falsely identifying lizards as other animals (e.g., mosquitoes or seahorses).
- Dallaire is using **LabelML** to manually annotate bounding boxes for 1000 images, aiming to improve lizard detection.
- The objective is to use a refined model to crop out lizards and improve overall classification accuracy.
- The team is waiting for the next iteration of the model to assess the improvements.

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4. Companies / Projects Mentioned

Company / Project Name	Description	Associated Company / Contact
MobileNet V2	A lightweight convolutional neural network model	N/A

Company / Project Name	Description	Associated Company / Contact
RoboFlow	A platform for managing and labeling datasets for computer vision	N/A
LabelML	A tool for creating annotations (e.g., bounding boxes)	N/A

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5. People Mentioned

Name	Description	Associated Company
Jacob Dallaire	Presented work on lizard detection models, managing dataset preparation	N/A
James T. Stroud	Dr. Stroud, providing feedback on model development and next steps	N/A
Philip G. Woolley	Scheduled to share his screen next, minimal input in this section	N/A

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6. Facts / Statements with Numbers

1. Dallaire plans to annotate **1000 images** using bounding boxes for lizard detection.
2. The pre-trained object detection model Dallaire tested had around **60 classes** but yielded poor results.

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7. Action Items

Jacob Dallaire

- Continue annotating **1000 images** using LabelML for object detection training.
- Implement transfer learning with the MobileNet V2 model for improved lizard detection.
- Refine the dataset with cropped lizard images for further classifier training.

James T. Stroud

- Await the next iteration of the lizard detection model and review results.

Skull Segmentation

1. Subject Line

Manual Segmentation Challenges and Model Training Improvements for Lizard Dataset

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2. Two-Line Summary

Philip Woolley discussed the time-consuming process of manually segmenting lizard scans and retraining models with this data, aiming to improve the accuracy of future predictions. The team also considered strategies for improving scan orientation and documentation for future students.

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3. Key Points

- Philip Woolley manually segmented **2 full scans** of lizard heads, resulting in **270 training images** and **75 validation images**.
- The manual segmentation process takes over **two hours** per scan.
- Future steps include segmenting more lizards and retraining the model to see if performance improves.
- Woolley mentioned incorporating a new quality calculation during training to better assess the training duration and accuracy.
- The group discussed improving the pipeline by addressing scan orientations and ensuring future scans align better with XYZ axes.
- Dr. Stroud requested Woolley to screen-record his next manual segmentation to provide future students with a visual guide for the process.
- The meeting wrapped up with praise for the team's progress and a commitment to keeping meetings efficient.

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4. Companies / Projects Mentioned

Company / Project Name	Description	Associated Company / Contact
N/A	No external companies or projects mentioned	N/A

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5. People Mentioned

Name	Description	Associated Company
Philip G. Woolley	Discussed manual segmentation of lizard scans and model training	N/A
James T. Stroud	Dr. Stroud, providing feedback and suggestions for next steps	N/A

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6. Facts / Statements with Numbers

1. Philip Woolley segmented **2 full scans**, resulting in **270 training images** and **75 validation images**.
2. Manual segmentation takes over **two hours** per scan.

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7. Action Items

Philip G. Woolley

- Continue segmenting lizard scans and retrain the model with additional data.
- Implement new quality calculations into the model training process.
- Screen-record the next manual segmentation for future documentation.

James T. Stroud

- Review the performance of the next iteration of the model after additional segmentations.
- Ensure future students have access to recorded segmentation tutorials.

X-Ray

1. Subject Line

Image Processing Optimization and Automated vs. Manual Pipeline Discussion

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2. Two-Line Summary

The meeting discussed the differences between manual and automated image processing techniques, focusing on contrast and brightness adjustments in images. The team debated whether to explore deep learning methods to further refine the automation process.

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3. Key Points

- Discussion about two possible image processing pipelines: manual vs. automated.
- The automated process applies consistent settings, such as contrast and blur, across all images.
- Manual processing yields different visual results compared to automated processes, particularly in brightness and contrast.
- The idea of using machine learning to train a model for individualized image processing was proposed.
- Ayush designed a script for automated image processing, configurable via command line.
- Dr. Stroud raised the question of whether the deep learning model for image processing would be a worthwhile exploration.
- Ayush highlighted that implementing a deep learning approach would require new setups and additional work.
- Decision to revisit the deep learning approach based on future needs; current focus remains on the manual vs. automated methods.

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4. Companies / Projects Mentioned

Company / Project Name	Description	Associated Company / Contact
OpenCV	A library used for real-time computer vision tasks	N/A

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5. People Mentioned

Name	Description	Associated Company
Mercedes Quintana	Meeting lead, discussed image pipeline processes	N/A
James T. Stroud	Dr. Stroud, provided feedback on image processing	N/A
Ayush Parikh	Developer, created automated image processing script	N/A
Jonathan J. Suh	Attendee, minimal input in this section	N/A

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6. Facts / Statements with Numbers

1. Ayush's script for image processing can adjust contrast by a specific percentage (e.g., "plus 40% contrast").
2. Dr. Stroud is uncertain if deep learning image processing would take "5 minutes or five months" to implement.

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7. Action Items

Ayush Parikh

- Continue refining the automated image processing script.
- Investigate deep learning techniques for image processing as a potential future project.

James T. Stroud

- Consider the exploration of deep learning for individualized image processing when appropriate.