

# Excursion: Applications of Computer Vision

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# Organisation of the Excursion

- Excursion topic: Computer aided analysis of medical imaging
- Company: Contextflow (<https://contextflow.com/>)
- You **have to** visit the excursion to pass the course

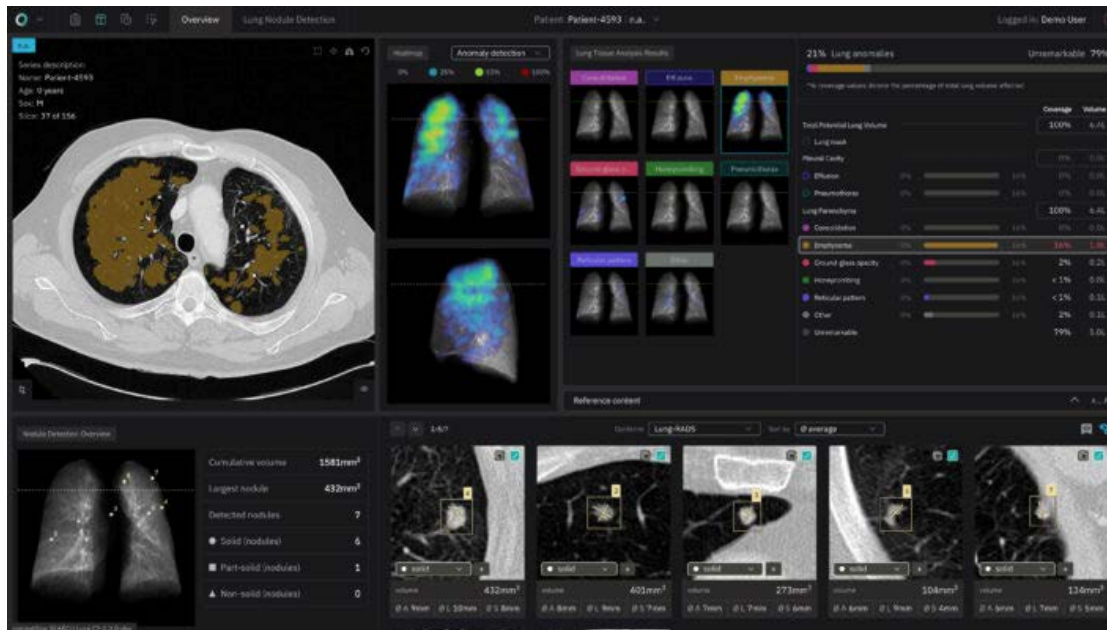


Image taken from: <https://contextflow.com/>

# Organisation of the Excursion

- Excursion date: TUE 05.12. 9:00-11:00
- We will meet in front of Margaretenstraße 70, 1050 Wien.  
Please be there 10 min before the excursion starts.
- After Excursion you have to
  - Create a written report
  - Create a presentation



# During the excursion

- If you feel sick or cannot attend due to other reasons contact me ([mwoedlinger@cvl.tuwien.ac.at](mailto:mwoedlinger@cvl.tuwien.ac.at))
- Ask questions (!!)

# Written Report

- **4 pages** per student including references
- No generic „excursion summary“
- Pick a problem related to the excursion.
  - What is the problem that needs to be solved?
  - How was computer vision used to solve it?
- Enter your topic here and ensure that no one has the same topic:  
<https://docs.google.com/spreadsheets/d/10mDD52fX5U029isTE8k87c4snotzUKX97jJ1YZfKHMM/edit?usp=sharing>

# Written Report

- **Structure:**
  - Introduction
  - Problem statement
  - Solution/discussion of state-of-the-art approaches
  - Conclusion
- **Due Dates**
  - First draft: 08.01.2024
  - Final report: 22.01.2024

# Presentation

- Max **8 min** per person
- Due Date: 22.01.2024

# Summary of Tasks

- Find and describe computer vision applications
- Present the results
  - Written document (4 pages)
  - Presentation (max. 8 minutes per student)



# Schedule

13.11.2024 (today)	<b>1. Excursion exercise:</b> Details on excursion, work plan, work flow, preparations
5.12.2023 9:00-11:00	<b>2. Exkursion exercise:</b> Excursion to emotion3d
15.01.2024	<b>3. Excursion exercise:</b> Discussion of the 1st document, improvements, planning of presentation
22.01.2024	<b>Final Presentations:</b> 1 Document submission 1 Presentation submission

**DEADLINE 1st DRAFT**  
**08.01.2024**  
**Submission to**  
**[mwoedlinger@cvi.tuwien.ac.at](mailto:mwoedlinger@cvi.tuwien.ac.at)**

# Analyze 3d medical images

Overview Lung Nodule Detection Patient: Patient-4593 | n.a. Logged in: Demo User

Series description:  
 Name: Patient-4593  
 Age: 0 years  
 Sex: M  
 Slice: 37 of 156

Heatmap Anomaly detection  
 0% 25% 50% 100%

Lung Tissue Analysis Results

Category	Coverage	Volume
Consolidation	0%	0.0L
Effusion	0%	0.0L
Emphysema	16%	1.0L
Ground-glass opacity	0%	0.2L
Honeycombing	0%	< 1%
Pneumothorax	0%	0.0L
Reticular pattern	0%	< 1%
Other	0%	0.1L
Unremarkable	79%	5.0L

21% Lung anomalies Unremarkable 79%

\*% coverage values denote the percentage of total lung volume affected

Category	Coverage	Volume
Total Potential Lung Volume	100%	6.4L
Lung mask		
Pleural Cavity	0%	0.0L
Effusion	0%	0.0L
Pneumothorax	0%	0.0L
Lung Parenchyma	100%	6.4L
Consolidation	0%	0.0L
Emphysema	16%	1.0L
Ground-glass opacity	0%	0.2L
Honeycombing	0%	< 1%
Reticular pattern	0%	< 1%
Other	0%	0.1L
Unremarkable	79%	5.0L

Reference content

Nodule Detection Overview

Cumulative volume	1581mm <sup>3</sup>
Largest nodule	432mm <sup>3</sup>
Detected nodules	7
● Solid (nodules)	6
■ Part-solid (nodules)	1
▲ Non-solid (nodules)	0

Guideline: Lung-RADS Sort by: Ø average

Nodule ID	Volume	Dimensions (A x L x S)
1	432mm <sup>3</sup>	Ø A 9mm Ø L 10mm Ø S 8mm
2	401mm <sup>3</sup>	Ø A 8mm Ø L 9mm Ø S 7mm
3	273mm <sup>3</sup>	Ø A 7mm Ø L 7mm Ø S 6mm
4	104mm <sup>3</sup>	Ø A 6mm Ø L 9mm Ø S 4mm
5	134mm <sup>3</sup>	Ø A 6mm Ø L 7mm Ø S 5mm

contextflow SEARCH Lung CT-2.0.0-dev



Thank you

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<https://cvl.tuwien.ac.at/course/applications-of-computer-vision-ex/>