

Deep learning classification of rheumatoid arthritis

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Abstract

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Acknowledgements

I want to thank...

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1 Introduction

Nennt bestehende Arbeiten/Literatur zum Thema Literaturrecherche • Stand der Technik: Bisherige Lösungen des Problems und deren Grenzen • (Nennt kurz den Industriepartner und/oder weitere Kooperationspartner und dessen/deren Interesse am Thema Fragestellung)

Formuliert das Ziel der Arbeit • Verweist auf die offizielle Aufgabenstellung des/der Dozierenden im Anhang • (Pflichtenheft, Spezifikation) • (Spezifiziert die Anforderungen an das Resultat der Arbeit) • (Übersicht über die Arbeit: stellt die folgenden Teile der Arbeit kurz vor) • (Angaben zum Zielpublikum: nennt das für die Arbeit vorausgesetzte Wissen) • (Terminologie: Definiert die in der Arbeit verwendeten Begriffe)

2 Chapter Two Title

2.1 Rheumatoid arthritis

Rheumatoid arthritis is caused by a malfunctioning immune system. The immune attacks healthy tissue instead of bacteria and viruses. This causes inflammation in the joints. Irreversible damage to the joint can occur, if the inflammation lasts for a long time. [2]

2.2 Convolutional neural networks

Convolutional neural networks take an image as an input. The image then gets passed through several convolutional layers. These layers work as filters and detect different features in the image. The weights of these layers are combined to class scores. Andrey Karpathy provides a good overview over convolutional neural networks in his course notes for the Stanford class CS231n. [1]

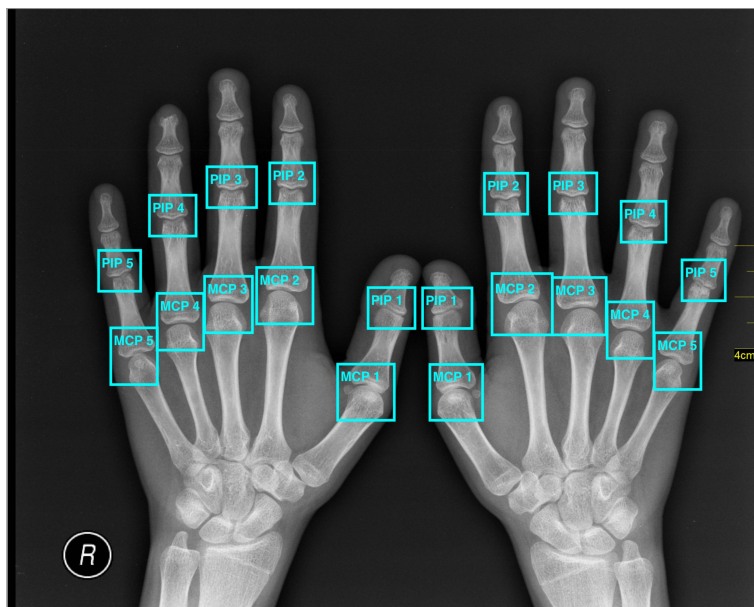


Figure 1: Proximal interphalangeal joints (PIP) and carpometacarpal joints (MCP).

Image by Nevit Dilmen (CC BY-SA) https://commons.wikimedia.org/wiki/File:Medical_X-Ray_imaging_OPC06_nevit.jpg

2.3 Rau classification

3 Chapter Three Title

4 Chapter Four Title

5 Conclusion

References

- [1] Stanford University Andrej Karpathy. *CS231n Convolutional Neural Networks for Visual Recognition*. [Online; accessed 26-September-2017]. URL: <http://cs231n.github.io/convolutional-networks/>.
- [2] American College of Rheumatology. *Rheumatoid Arthritis*. [Online; accessed 26-September-2017]. URL: <https://www.rheumatology.org/I-Am-A/Patient-Caregiver/Diseases-Conditions/Rheumatoid-Arthritis>.

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