DEPARTMENT OF COMPUTER SCIENCE
AND MATHEMATICS

UNIVERSITY OF APPLIED SCIENCES MUNICH

Master's Thesis in Computer Science

Interactive Segmentation Methods

Alexander Fertig

DEPARTMENT OF COMPUTER SCIENCE
AND MATHEMATICS

UNIVERSITY OF APPLIED SCIENCES MUNICH

Master's Thesis in Computer Science

Interactive Segmentation Methods

Author:	Alexander Fertig
Supervisor:	Prof. Dr. David Spieler
Advisor:	Advisor
Submission Date:	Submission date

I confirm that this master's thesis in computer science is my own work and I have documented all sources and material used.

Munich, Submission date Alexander Fertig

Acknowledgments

Zusammenfassung

1. Introductions
    a) DL in Industry
    b) Application of DL and gathering Labels
2. Basics
    a) ML, DL, CNN
    b) Semantic Segmentation (and IoU)
    c) Interactive Semantic Segmentation (Methods of comparison)
3. Methods
    a) IOG
    b) Extreme Points
4. Benchmark
    a) Motivation and structure of the Benchmark
    b) Applied Methods
    c) Evaluation (or put Evaluation as own chapter)
5. Conclusion

Inhaltsverzeichnis

1 Introduction

1.1 Section

Citation test [Lam94] [Zha+20].

1.1.1 Subsection

See Tabelle 2.3, Abbildung 1.1, Abbildung 2.2, Abbildung 1.3.

Tabelle 1.1: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

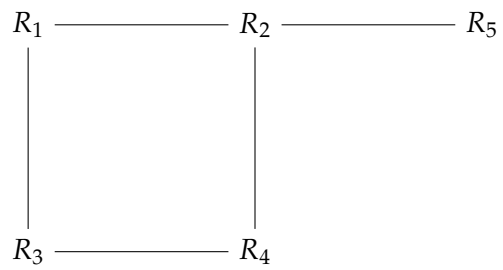

Abbildung 1.1: An example for a simple drawing.

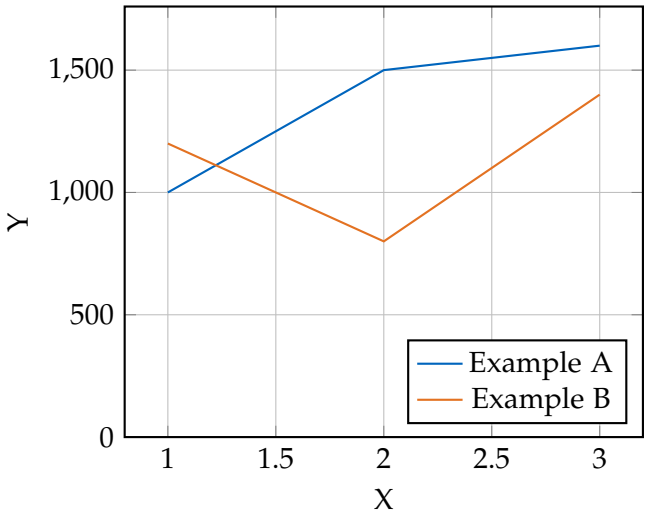

Abbildung 1.2: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 1.3: An example for a source code listing.

2 Basics

2.1 ML, DL, CNNs

Citation test [Lam94] [Zha+20].

2.1.1 Subsection

See Tabelle 2.2, Abbildung 2.7, Abbildung 2.8, Abbildung 2.9.

Tabelle 2.1: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

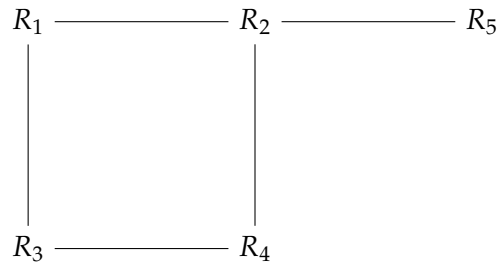

Abbildung 2.1: An example for a simple drawing.

2.2 Semantic Segmentation

Citation test [Lam94] [Zha+20].

2.2.1 Subsection

See Tabelle 2.2, Abbildung 2.7, Abbildung 2.8, Abbildung 2.9.

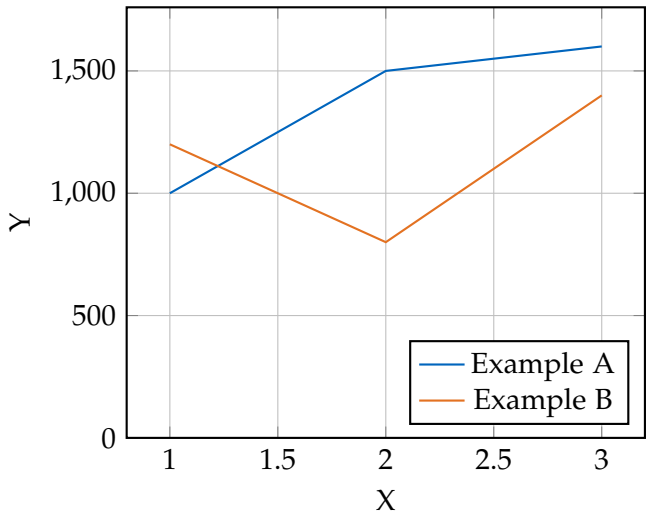

Abbildung 2.2: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 2.3: An example for a source code listing.

Tabelle 2.2: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

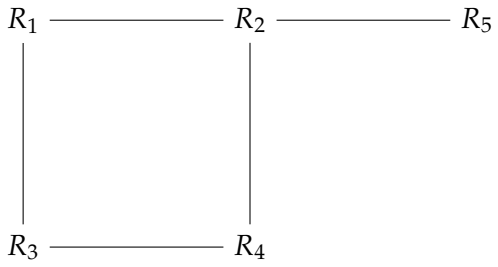

Abbildung 2.4: An example for a simple drawing.

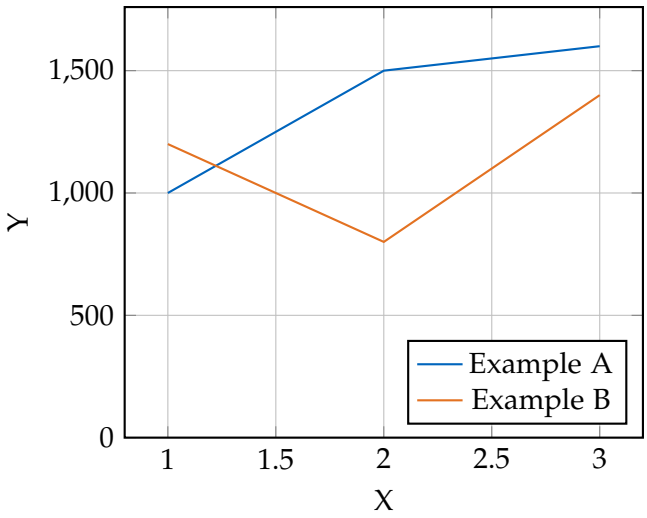

Abbildung 2.5: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 2.6: An example for a source code listing.

2.3 Interactive Semantic Segmentation

Citation test [Lam94] [Zha+20].

2.3.1 Subsection

See Tabelle 2.2, Abbildung 2.7, Abbildung 2.8, Abbildung 2.9.

Tabelle 2.3: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

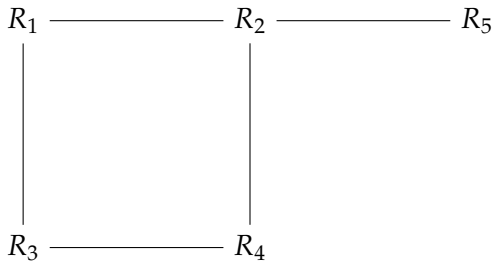

Abbildung 2.7: An example for a simple drawing.

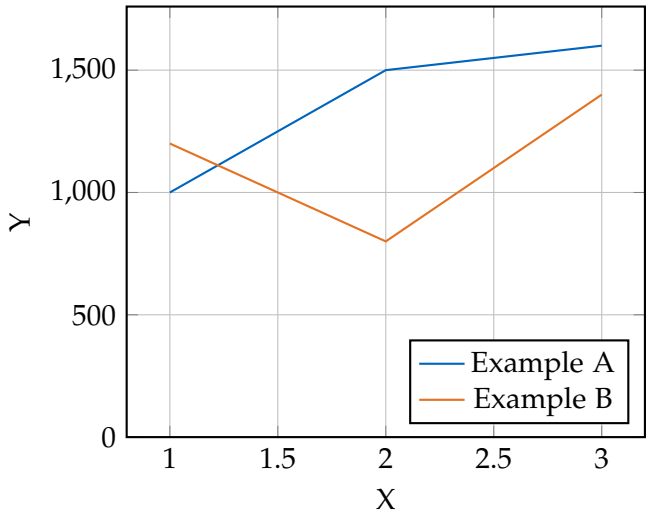

Abbildung 2.8: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 2.9: An example for a source code listing.

3 Methods

3.1 IOG

Citation test [Lam94] [Zha+20].

3.1.1 Subsection

See Tabelle 3.2, Abbildung 3.4, Abbildung 3.5, Abbildung 3.6.

Tabelle 3.1: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

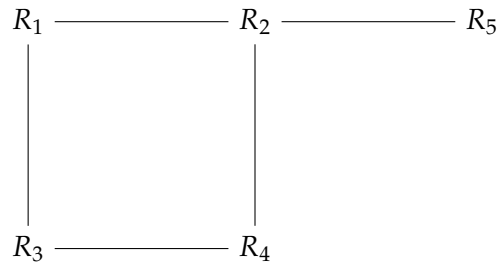

Abbildung 3.1: An example for a simple drawing.

3.2 Extreme Points

Citation test [Lam94] [Zha+20].

3.2.1 Subsection

See Tabelle 3.2, Abbildung 3.4, Abbildung 3.5, Abbildung 3.6.

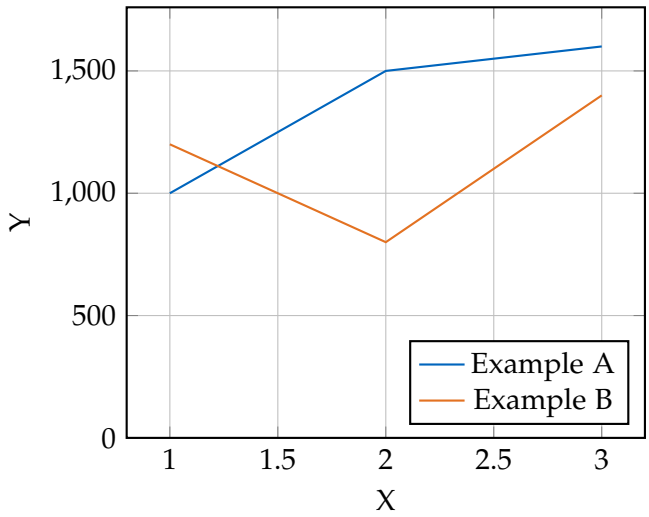

Abbildung 3.2: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 3.3: An example for a source code listing.

Tabelle 3.2: An example for a simple table.

A	B	C	D
1	2	1	2
2	3	2	3

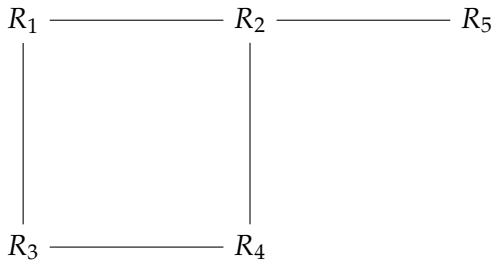

Abbildung 3.4: An example for a simple drawing.

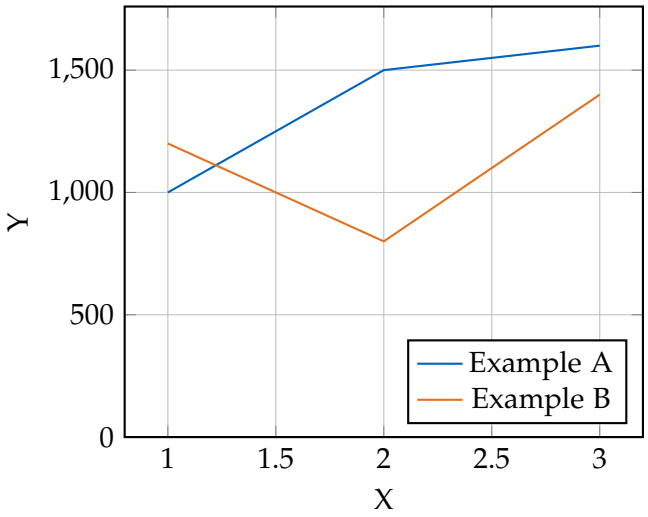

Abbildung 3.5: An example for a simple plot.

```
SELECT * FROM tbl WHERE tbl.str = "str"
```

Abbildung 3.6: An example for a source code listing.

Abbildungsverzeichnis

Tabellenverzeichnis

Literatur

[Lam94] L. Lamport. *LaTeX : A Documentation Preparation System User's Guide and Reference Manual*. Addison-Wesley Professional, 1994.

[Zha+20] S. Zhang, J. H. Liew, Y. Wei, S. Wei und Y. Zhao. „Interactive Object Segmentation With Inside-Outside Guidance“. In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 2020, S. 12234–12244.