



# Joel Niklaus

## PHD STUDENT · COMPUTATIONAL LINGUISTICS

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“The secret of getting ahead is getting started.” – Mark Twain

I am passionate about driving innovation in the field of Artificial Intelligence.

## Education

### PhD Student in Computer Science

Bern, Switzerland

UNIVERSITY OF BERN

Jul. 2020 - Jun. 2024

NRP 77 “Open Justice vs. Privacy”

Supervisors: PD Dr. Matthias Stürmer, Prof. Dr. Paolo Favaro, Prof. Dr. Thomas Myrach, Dr. Ilias Chalkidis

Studying Swiss Court Decisions from a Natural Language Processing Perspective

Supervision of Bachelor and Master theses

### Master of Science in Computer Science – insigni cum laude

Bern, Switzerland

UNIVERSITIES OF BERN, NEUCHÂTEL AND FRIBOURG

Sep. 2018 - Dec. 2019

Major 90: Computer Science with a specialization in Data Science (Grade average: **5.50/6**)

Minor 30: Sports Science (Grade average: 4.96/6) and various additional courses

Exchange Semester at Nanyang Technological University, Singapore (Spring 2019) (Grade average: 6/6)

Thesis: JassTheRipper – A High-Human Artificial Intelligence for the Swiss Card Game Jass (Grade: **6/6**)

### Bachelor of Science in Computer Science – magna cum laude

Bern, Switzerland

UNIVERSITY OF BERN

Sep. 2013 - Jun. 2018

Major 90: Computer Science (Grade average: **5.41/6**)

Minor 60: Sports Science (Grade average: 5.09/6)

Minor 30: Mathematics

Extracurricular Minor 15: Business Administration

Exchange Semester at University of Exeter, England (Spring 2017) (Grade average: 5/6)

Thesis: Machine Learning for Indoor Positioning (Grade **6/6**)

### Swiss Matura

Winterthur, Switzerland

KANTONSSCHULE RYCHENBERG WINTERTHUR

Aug. 2007 - Jul. 2013

Bilingual (German and English) with a focus on ancient languages (Greek & Latin) (Grade average: 4.96/6)

Thesis: scholarcoach.ch – A Tutoring Portal (Grade **6/6**)

## Selected Publications

For a comprehensive list, please refer to my [Google Scholar](#).

### An Empirical Study on Cross-Lingual and Cross-Domain Transfer for Legal Judgment Prediction

Seattle, United States

J. NIKLAUS, I. CHALKIDIS, M. STÜRMER

Jul. 2022

Under Review @ North American Chapter of the Association for Computational Linguistics (NAACL)

### Swiss-Judgment-Prediction: A Multilingual Legal Judgment Prediction Benchmark

Punta Cana, Dominican Republic

J. NIKLAUS, I. CHALKIDIS, M. STÜRMER

Nov. 2021

Natural Legal Language Processing Workshop (NLLP) @ Empirical Methods for Natural Language Processing (EMNLP)

### Application of Eye Tracking in Puzzle Games for Adjunct Cognitive Markers: Pilot Observational Study in Older Adults

C. KREBS, M. FALKNER, J. NIKLAUS, L. PERSELLO, S. KLÖPPEL, T. NEF, P. URWYLER

Mar. 2021

JMIR Serious Games 2021

## Challenging Human Supremacy: Evaluating Monte Carlo Tree Search and Deep Learning for the Trick Taking Card Game Jass

Zakopane, Poland

J. NIKLAUS, M. ALBERTI, R. INGOLD, M. STOLZE, T. KOLLER

Sep. 2020

19th International Conference on Artificial Intelligence and Soft Computing (ICAISC)

## Survey of Artificial Intelligence for Card Games and Its Application to the Swiss Game Jass

Bern, Switzerland

J. NIKLAUS, M. ALBERTI, V. PONDENKANDATH, R. INGOLD, M. LIWICKI

Jun. 2019

6th Swiss Conference on Data Science (SDS)

## Experience

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### RESEARCH

#### Data Science Intern

Zug, Switzerland

THOMSON REUTERS LABS

Mar. 2022 - Aug. 2022

Improving Transformers for Long Document Processing

#### Junior Researcher

Fribourg, Switzerland

UNIVERSITY OF FRIBOURG

Mar. 2020 - Aug. 2020

Loss Landscape Visualization of Neural Networks: <https://github.com/JoelNiklaus/loss-landscape>  
Historical Document Analysis with Deep Learning

#### Data Scientist

Bern, Switzerland

ARTORG CENTER FOR BIOMEDICAL ENGINEERING RESEARCH

Mar. 2020 - Sep. 2020

Maintenance and extension of tele-health applications  
Development of cognitive models from existing data  
Development of algorithms for dynamic difficulty adjustments for tele-apps  
Analysis and presentation of complex datasets

### SOFTWARE DEVELOPMENT

#### Independent Software Developer

Bern, Switzerland

JOELNIKLAUS.CH

Aug. 2012 - present

Successful implementation of various orders for customers (<https://joelniklaus.ch>)  
Selected customers: University of Bern, University for senior citizens Bern, Claire & George, Freies Gymnasium Bern, KS Rychenberg

#### Web Developer

Bern, Switzerland

FASTFORWARD WEBSOLUTIONS GMBH

Sep. 2017 - Jun. 2018

User interface development with Aurelia for a calculator of supplementary services (old age insurance) for Pro-Senectute Switzerland (<https://prosenectute.ch/de/dienstleistungen/beratung/finanzen/el-rechner.html>)

### TEACHING

#### Lecturer for Software Engineering

Bern, Switzerland

BERN UNIVERSITY OF APPLIED SCIENCES

Aug. 2021 - present

I planned and conducted the technical part of the module Software Engineering (Code Management, DevOps, Web Technologies, etc.).

#### Lecturer for Natural Language Processing Seminar

Bern, Switzerland

UNIVERSITY OF BERN

Aug. 2021 - Jul. 2022

I lead, planned and executed the entire Seminar (20 BSc/MSc students in total). I supervised various individual and group projects.

#### High School Teacher for Computer Science & Robotics

Bern, Switzerland

FREIES GYMNASIUM BERN

Aug. 2019 - Jul. 2020

I assembled the coursework material for the brand new course computer science as the first teacher; I conducted difficult conversations with parents and students.

#### High School Teacher for Information and Communication Technology

Winterthur, Switzerland

KANTONSSCHULE RYCHENBERG WINTERTHUR

Feb. 2016 - Aug. 2020

Already during bachelors I started teaching students in applied computer skills; I supervised various Matura theses

## Teaching Assistant for “Programming Languages” (MSc), “Software Engineering” (BSc) and “Computer Networks” (BSc)

Bern, Switzerland

UNIVERSITY OF BERN

Sep. 2015 - Jun. 2021

Supervision of students  
Organisation and execution of practice hours  
Composition and Correction of lab assignments and exams

## Awards

2021	<b>Research Grant (60'000 CHF)</b> , Pretraining Swiss Long Legal BERT, Swiss Federal Supreme Court	Bern, Switzerland
2019	<b>Nominee</b> , Best Master Thesis, University of Fribourg, Department of Computer Science	Fribourg, Switzerland
2017	<b>Winner</b> , Excellent Work in Computer Science (Bachelor Thesis), Joint Alumni Association of the Universities Bern, Neuchâtel & Fribourg	Bern, Switzerland
2017	<b>2nd Place</b> , JassChallenge, Zühlke (Large Swiss Software Consulting Company)	Bern, Switzerland
2016	<b>2nd Place</b> , RoboChallenge, Zühlke	Bern, Switzerland

## Projects

2019 – 2020	<b>Identifai</b> , Building an admission system with face recognition
2017 – 2018	<b>DeinLohn</b> , Building a platform for disclosing and comparing salaries across jobs and industries ( <a href="https://deinlohn.ch">https://deinlohn.ch</a> )
2014 – 2017	<b>ProjectEuler</b> , Solving challenging mathematical problems with computer programming ( <a href="https://projecteuler.net/profile/JoelNiklaus.png">https://projecteuler.net/profile/JoelNiklaus.png</a> )

## Presentations

### CAS Advanced Machine Learning: Introduction to NLP

Bern, online

PRETRAINED LANGUAGE MODELS

Feb. 2022

Invited Talk

### AI and Law Conference by recode.law

online

SWISS-JUDGMENT-PREDICTION: A MULTILINGUAL LEGAL JUDGMENT PREDICTION BENCHMARK

Jan. 2022

Invited Talk

### International Conference of Artificial Intelligence and Law (ICAIL) 2021

online

ESRA: AN END-TO-END SYSTEM FOR RE-IDENTIFICATION AND ANONYMIZATION FOR SWISS COURT RULINGS

Jun. 2021

Doctoral Consortium presentation

### Advanced Language Processing Winter School (ALPS) 2021

online

ESRA: AN END-TO-END SYSTEM FOR RE-IDENTIFICATION AND ANONYMIZATION FOR SWISS COURT RULINGS

Jan. 2021

Poster presentation

### AAAI Workshop on Reinforcement Learning in Games (RLG)

New York, United States

CHALLENGING HUMAN SUPREMACY: EVALUATING MONTE CARLO TREE SEARCH AND DEEP LEARNING FOR THE TRICK

Feb. 2020

TAKING CARD GAME JASS

Poster presentation ([http://aaai-rlg.mlanctot.info/papers/AAAI20-RLG\\_paper\\_21.pdf](http://aaai-rlg.mlanctot.info/papers/AAAI20-RLG_paper_21.pdf))

### Applied Machine Learning Days (AMLDD)

Lausanne, Switzerland

COMPARING LEARNING AND SEARCH ALGORITHMS IN THE SWISS CARD GAME JASS

Jan. 2020

Poster presentation

### PyData Zurich

Zurich, Switzerland

PEDIATRIC BONEAGE PREDICTION

Nov. 2018

Predicting the age of children based on hand xray images with deep neural networks (<https://meetup.com/en-AU/PyData-Zurich/events/255193573>)