

# GSoC 2018 – Application Form

Project: *pracmln – Markov logic networks in Python/Cython*

## Personal Data

Full Name:

E-Mail:

Date of Birth:

(DD.MM.YYYY)

Degree:

University:

Major:

*(e.g. Computer Science, Math, ...)*

Year of studies:

*(e.g. 3<sup>rd</sup> year Bachelor)*

Grade Avg:

# Professional Experience

On a scale from 1-10 (1 means poorest, 10 means best), rate your professional experience in the respective categories. You should also provide evidence for your declarations, e.g. you can provide links to open-source projects you have contributed to, append copies of certificates, a transcript of records – anything that you think makes your application stronger and your declarations more convincing. *Note: Just forking a repository on GitHub without any contributions is not sufficient evidence for your skills, you must have substantially contributed to the project.*

## Programming in Python

Proficiency level (1-10):

Evidence:

## Experience in AI Topics

Proficiency level (1-10):

Evidence:

## Experience in Machine Learning

Proficiency level (1-10):

Evidence:

## Experience with Markov Logic Networks

Proficiency level (1-10):

Evidence:

## Programming in C/C++

Proficiency level (1-10):

Evidence:

## Programming in Cython

Proficiency level (1-10):

Evidence:

## Statement of Motivation

Please provide a *concise* (<1,000 chars) statement about your motivation to contribute to this project and why you are the right candidate to achieve the project's goals:

# Assignment

## Optical Character Recognition (OCR) with MLNs

Suppose we want to classify hand-written digits 0-9 in binary 16x16 pixel images. Each pixel is considered a Boolean input and the output is a multinomial variable with the domain 0-9, i.e. the classes to be predicted. Your task is to design a Markov logic network in *pracmln*, which is **equivalent** to a *logistic regression classifier*. Make sure to also choose an *appropriate* learning **and** inference algorithm.

Use the GUI tools provided by *pracmln* to design your network and algorithm settings. Attach the *.pracmln* project file to your application. Put comments into your MLN files to make your decisions traceable.

## Submission Information

After having completely filled out this application form, proceed as follows. Create a *.tar.gz*-file with the following contents:

- this (filled out) application form
- any complementary/supplementary documents that you think make your application stronger (certificates, transcript of records, ...)
- the *.pracmln* project file with your solution to the assignment

Send this zip file by email to [nyga@cs.uni-bremen.de](mailto:nyga@cs.uni-bremen.de) with the subject "GSoC-18 Application".