

# Karel Šmejkal

## Curriculum Vitae

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Master's student of Computer Science at Technische Universität Berlin, Data scientist specialising in machine learning. I have acquired a wealth of theoretical and practical expertise from working in a real-estate startup and through my Master's candidature in computer science at Technische Universität Berlin. I am especially interested in deep learning implementation and research applications of state of the art computer vision systems. I am passionate about building intelligent systems and new technologies to improve outcomes for future generations.

## Experience

- 10/2018- BEEKIN **Working Student - Data Scientist, Berlin, Germany**  
04/2020
- Build models (Random Forest, Ensemble) to classify risk of late payments of borrowers
  - Time Series Analysis to predict (Linear Regression) and analyse monthly rent in cities in the USA
  - Analysis and optimal pricing of meeting rooms
  - Use of AWS lambda and machine learning techniques to automate and clean data as well as analysis of large datasets
  - NLP crime types categorisation
- Technologies used: Python, PySpark, AWS, ML frameworks, SQL**
- 08/2017- SPOTCAP GLOBAL SERVICES GMBH **Working Student - System Admin, Berlin, Germany**  
09/2018
- Maintenance of local network infrastructure
  - Setting up relational and non-relational databases
  - Assisting in deploying services on Linux-based servers (AWS, local servers)
  - Automating simple scripts (python, shell)
  - Diagnosing and resolving technical hardware and software issues
- Technologies used: Shell, Python, AWS, SQL, NoSQL**

## Volunteer Experience

- 10/2019- SMALL-SCALE AUTONOMOUS RACING CAR  
02/2020
- Development of an small-scale autonomous racing car in a group of 4. The goal was to develop autonomous racing car which could race on previously unknown track. Developed in **Python and C++ using ROS middleware**. Short demo: [LINK](#). Technical paper: [LINK](#)
- 06/2018 TECHCRUNCH HACKATON 24 Hours Hackaton held in Paris
- Development of an app to automate process of car rental for a company GEFCO in the team of 5 people. The goal was to use cameras during the return of a car to automate cleaning and detection of small scratches on the car's surface. The app was developed for android and the model in **Python (TensorFlow)**.
- 08/2017 CANSAT: SATELLITE DESIGN Design of a small scale satellite, rocket and their launch sequence
- Development of water-driven rocket and small scale satellite performing basic measurements with an Arduino. Covered introduction to astronautics, CAD design and mission design. The controlling software was coded in **C++**. Launch video link - [LINK](#)
- 06/2017 OCEAN GAME JAM BERLIN Two-day event held in Berlin with the purpose of creating a game about the scientific issues.
- Development of the the game FISH in a team of five members using **Java** and **libGdx** framework. Creating a fun, playable game that generated warnings for rising sea levels and overfishing with a team of five members.

- 03-06/2015 **MEDIA ART LAB MERCOSUL** An international artistic project for the Goethe Institute in Porto Alegre (Brazil) led by German artist PEGGY SYSLOPP. Developed in **shell, Python and C**.
- Programming of interactive media-installation with 6 CRT monitors and one Raspberry.
  - Dynamic testing of interactive media-installation with two Raspberry Pi and one Pi2Go.
    - The robot Pi2Go with a camera follows a fictive borderline in the form of an heart and streams the video to a Raspberry.

## Education

- 2017– present **Master's Degree**, Computer Science, Cognitive Systems  
Faculty IV: Electrical Engineering and Computer Science,  
**Technische Universität Berlin**, GERMANY
- 2012–2016 **Bachelor's Degree**, Information System and Management  
Faculty of Information Technology,  
**Czech Technical University in Prague**, CZECH REPUBLIC
- Awardee of grant for outstanding performance in summer semester 2015 and winter semester 2015/2016
- 8/2014–8/2015 **Study abroad**, Institute of Informatics, UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL, BRAZIL

## Computer Skills

- |                              |  |                                    |   |
|------------------------------|--|------------------------------------|---|
| <b>Programming Languages</b> | - Python, C++, Java, SQL, Shell Scripting  | <b>Machine Learning Frameworks</b> | - Scikit-learn, PyTorch, fast.ai, TensorFlow, Keras |
| <b>Libraries/ Frameworks</b> | - OpenCV, Pandas, NumPy, Apache Spark, ROS | <b>Technologies</b>                | - AWS, GCP, Docker, Git                             |

## Languages

- |                      |              |
|----------------------|--------------|
| English              | Fluent       |
| Czech                | Native       |
| Brazilian Portuguese | Intermediate |
| German               | Beginner     |

## External Interests

- Travelling Enjoy solo travelling on a budget which enables me to get out of my comfort zone and explore new cultures.
- Photography, Videography Expressing creativity through video editing and short video composition.
- Podcasts, Books Learning new ideas and expanding my knowledge. My favorite podcasts: Lex Fridman Podcast, Joe Rogan Experience. My favorite Books: 12 rules for life by Jordan Peterson, Brief answers to the big questions by Stephen Hawking, Life 3.0 by Max Tegmark
- Drone Flying How I like to spend my free time on the weekends.