



Andres Becker

CONTACT

Birth date:

20.02.1990.

Nationality:

 Mexican

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LANGUAGES

- **Spanish**
Mother tongue
- **English**
B2. IELTS, 2017
- **German**
A2.1

SOFT SKILLS

- Communication
- Adaptability
- Teamwork
- Critical thinking
- Self taught

ABOUT ME

Master student in Mathematics at the Technische Universität München. Strongly motivated and committed person, with a high interest in Computer Science and Machine Learning. Experience in Cyber Security, Linux systems and IT administration.

WORKING EXPERIENCE

Internship | AIRBUS Defence and Space

08.2019 - 02.2020, Full time

Development of path planning algorithms for multiple autonomous Unmanned Aerial Vehicles and statistical analysis.

Key duties: Convex optimisation and statistical analysis in R.

Cyber Security Analyst | Bank of Mexico (Banxico)

12.2016 - 08.2018

Cyber Security analysis and IT administration of Linux base systems (RHEL7) at the electronic payments systems department.

Administration of the database management system (PostgreSQL).

Key duties: System hardening, monitoring, administration and shell script programs.

IT Manager | Clabeck

06.2009 - 12.2016

Administration of the IT resources (network, 40 work stations, 2 Windows servers, 1 Linux server and databases).

Key achievements: VPN (over IPsec) infrastructure implementation for branches (2012), change of headquarters (design and installation of more than 100 network nodes, 2015).

Internship | Direction of Computing and Communications (IPN)

05.2014 - 12.2014, Part time

Data mining of Cyber Security attacks, using text processing programming language (AWK and Grep), shell scripting and IBM SPSS.

EDUCATION

MSc. Mathematics | Technische Universität München

10.2018 - Current

BSc. Physics und Mathematics | Instituto Politécnico Nacional México

08.2008 - 06.2014

Dissertation: *The NSGA-II algorithm and its hybridization with a gradient based method*. The objective was to improve the performance of the genetic algorithm NSGA-II by merging it with a mathematical exact method.

SOFTWARE

- Programming: C, Python, MATLAB, NumPy, AWK, Bash, VBA.
- Machine Learning: TensorFlow, PyTorch.
- Statistics: R, IBM SPSS.
- SQL Database Managers: PostgreSQL, MySQL, SQL Server.
- Miscellaneous: ~~LaTeX~~ **LaTeX**, Linux-based systems, Networking, Windows Server.



COURSES & WORKSHOPS

- BigData in Payments, 60 hours. | **ITESM 2017**
- Red Hat System Administration I, 45 hours. | **RedHat Academy 2017**
- VBA in Excel Workshop, 25 hours. | **Instituto Politécnico Nacional 2015**
- SQL Server Workshop, 25 hours. | **Instituto Politécnico Nacional 2015**
- Diploma course in Interconnecting LAN & WAN Networks,
200 hours | **Centro de Investigación en Computación, IPN 2015**



Dear selection committee,

The following are my chosen projects in order of priority (from highest to lowest). However I find the 3 of them very interesting, so it would make me very happy to collaborate in any of them. During my masters, I also have the pleasure to work together with Victor Andres Caceres Chian, who is a very smart person with excellent programming skills. So I really hope that Victor and I can collaborate together in project 1 or 3.

1.- Multi-Agent Reinforcement Learning for Logistics

Since the beginning of my Masters program, Machine Learning was the topic I had more interest on, therefore I have taken the subjects Deep Learning, Machine Learning (ML) and ML for Computer Vision. Then I did an internship at AIRBUS, where I worked developing an algorithm to optimise trajectories for multiple autonomous Unmanned Aerial Vehicles and I also had the opportunity to work with the team designated to solve the same problem but with a multi agent Reinforcement learning approach. This experience gave me not only intuition and knowledge about the topic, but also encouraged me to learn more about it. I really think that this theoretical background, together with my experience, can be beneficial to the project.

2.- Radar SLAM for Autonomous Driving

I have a genuine interest in Autonomous Driving/Flying since I worked developing an algorithm to optimise trajectories for multiple autonomous Unmanned Aerial Vehicles, during my internship at AIRBUS. I am also a big fan of computers (I have almost two years of experience working in a bank as a cybersecurity analyst for linux systems), so I feel very comfortable programming and even working with hardware. Besides, I have taken the subjects Deep Learning, Machine Learning (ML) and ML for Computer Vision. Therefore, I really think that I can bring some valuable experience and knowledge to this project.

3.- Deep learning for genetic risk prediction

Genetics is a topic I have always enjoyed. For my bachelors dissertation I worked in a heuristic algorithm (Non-sorting Genetic Algorithm II) which emulates the evolution and natural selection to approximate solutions to complicated (multimodal, non convex and nonlinear) Multi-objective optimisation problems. During the master I took mathematical models in Biology, Machine Learning (ML), ML for Computer and Deep Learning. Finally, I like to read about genetics in my free time and I even bought a genetic test to see which diseases I may suffer in the future. Therefore, I do not only have the curiosity but also I think that I can do a good job in this project with all the skills I have gained with my experience.

Sincerely,

Andres Becker