

# FRANCO BROWN

LinkedIn, Github, Portfolio  
Concepción, Chile  
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## EXPERIENCE

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### Freelance

03/2023 - Present

- Complete CI/CD Pipeline. Exploratory data analysis, customer segmentation, and churn modelling with machine learning. Automatized deploy with DVC, Github Actions y Google Cloud Platform for continous deployment. Graphical user interface using Streamlit y FastAPI. ([App](#))

### Research engineer, UCSC

03/2020 - 03/2023

- Automatization of geotechnical simulation's workflows using python scripting speeding up the model setups by +30%.
- Development of a mathematical model for shallow foundation capacity under combined load 35% faster than the usual method and 96% using machine learning models and design of experiments. [Additional](#)
- Managed a project to improve and consolidate simplified finite element simulations; restructuring the workflow and cutting down calibrations by 70% using machine learning models.
- Developed and implemented an efficient element test and optimization algorithm in Python, resulting in a 50% reduction in calibration workflow time, exceeding industry standards.
- Design and implementation of a +40% faster method for selection of excavation's support systems based in previous data, complete development of CI/CD pipeline to deploy a model into a RestAPI.
- Development of a slope's support systems classification algorithm, designing ANN pipelines with sklearn and tensorflow, resulting in a +40% faster estimation method maintaining the accuracy of industry softwares, complete development of CI/CD pipeline to deploy a model into a RestAPI.
- Implementation of a modification of hypoplastic model with anisotropic fabric 30% more accurate than the normal formulation using one more state variable.

### Assistant professor, UCSC

03/2020 - 12/2021

- Improved students grades by 15% using Ipad notes and recording classes in Geotechnical Engineering and Foundations courses.
- Managed to increase the course grades by 12% using advanced physical models to explain topics in Rock mechanics and Underground Excavations courses.

## EDUCATION

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### Universidad Católica de la Santísima Concepción

03/2020 - 08/2023

Msc in Civil Engineering

Grade: 6.73/7.00 with the highest distinction

### Universidad Católica de la Santísima Concepción

03/2014 - 08/2023

Engineering degree in Geological Engineering

Grade: 5.60/7.00 with two votes of distinction

**Relevant courses:** Finite elements, Statistics, Sensitivity analysis.

### Universidad Católica de la Santísima Concepción

03/2014 - 08/2018

Bachelor degree in Engineering

## SKILLS

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### **Programming Languages and Frameworks**

Fortran, Python, SQL, Matlab, Latex, Microsoft Office Suite, Excel, Docker, Mlflows, AWS(EC2), GCP (Cloud build).

### **Python Packages**

Sklern, Numpy, Scipy, Tensorflow, Seaborn, Matplotlib, Pandas, skorch, DVC, FastAPI.

### **Geotechnical softwares**

Plaxis, Anura3D, Geoslope and Rocscience Suite.

### **Languages**

Spanish (native), Advanced English (Fluent)

## AWARDS AND SCHOLARSHIPS

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**Postgraduate program scholarship**, Universidad Católica de la Santísima Concepción      *03/2020*  
Full scholarship awarded to be a part of the program "master's degree in civil engineering".

## PUBLICATIONS UNDER REVIEW

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**A coupled hypoplastic-plastic macroelement model for shallow foundations under cyclic loading**, Main Author. *Acta Geotechnica*