FRANCO BROWN

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EXPERIENCE

Research engineer, UCSC *03/2020 - 03/2022*

- 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.

Teaching assistant, UCSC *08/2018 - 08/2019*

- Managed to increase the course grades by 12% using advanced physical models to explain topics in Rock mechanics and Underground Excavations courses.

EDUCATION

Universidad Católica de la Santísima Concepción *03/2020 - 08/2023*
Msc in Civil Engineering Grade: 6.73/7.00 with the highest distinction
Thesis project: Development of a coupled macroelement for foundations under monotonic and cyclic loads.

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

Programming Languages and Frameworks
Fortran, Python, SQL, Matlab, Latex, Microsoft Office Suite, Excel, Docker, Mlflows, AWS(EC2), GCP (Cloud build).
Python Packages
Sklearn, 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

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

PUBLICATIONS UNDER REVIEW

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