ARTURO RENTERÍA

Python Developer | Nanotechnology Researcher

Hermosillo, Sonora, Mexico | (+52) 662 336 8639 | arturylab@gmail.com
LinkedIn | GitHub | URL portfolio

ABSTRACT / OBJECTIVE

Python developer with a solid academic background in Nanotechnology and Industrial Engineering, teaching experience in mathematics and programming, and technical skills in backend development, data science, DevOps and high-performance computing. Passionate about solving complex problems through programming and computational modeling. I am proficient in tools such as Flask, Django, PyQt, Git, Docker, Azure, and SQL/NoSQL databases. Committed to continuous improvement and guided by agile methodologies (Agile, Lean, Kaizen), I seek to join a multidisciplinary team where I can add value through innovative and scalable solutions.

SKILLS

TECHNICAL SKILLS:

- **Python**
  - Web Development - Backend: Django, Flask | Frontend: (JS plugins, Jinja2 templates)
  - Data Science & ML: SciPy, NumPy, pandas, Matplotlib, seaborn, Scikit-Learn
  - GUI: PyQt5, PyQt6
- **Web**: HTML, CSS, JavaScript
- **Other languages**: Familiar with C, C++, C#
- **Databases**: SQL MySQL, PostgreSQL | NoSQL: MongoDB
- **Cloud & Orchestration**: Azure, Oracle Cloud, Kubernetes
- **DevOps & Version Control**: Git, GitHub, Docker
- **High Performance Computing (HPC):** Unix, Linux, Batch, SLURM
- **Project Management & Collaboration**: Slack, Notion
- **Methodologies:** Agile, Lean, Kaizen
- **Featured Skills:**
  - Mathematics and Numerical Analysis: Multivariable Calculus, Linear Algebra, Probability Theory, Inferential Statistics and Data Analysis, Numerical and Optimization Methods.
  - Physicochemistry: Quantum Mechanics, Computational Chemistry and Density Functional Theory.

SOFT SKILLS:
Effective Communication | Teamwork | Troubleshooting | Time Management | Adaptability | Critical thinking

PROFESSIONAL EXPERIENCE

Teacher:
Universidad Estatal de Sonora (UES) | August 2024 – December 2024
As a higher level teacher at this university, I taught the subjects of Integral Calculus and Numerical Methods.

Colegio de Bachilleres del Estado de Sonora (COBACH) | August 2017 – January 2024
As a high school teacher at this institution, I taught the subjects of Computer Science, Mathematics, Differential and Integral Calculus, and Probability and Statistics.

Instituto Tecnológico Superior de Cajeme (ITESCA) | August 2019 – July 2020
As a higher level teacher at this institution, I taught the subjects of Differential, Integral and Vector Calculus, Algorithms and Programming Languages, Properties of Materials and some subjects of Industrial Engineering.

Systems Manager:
Secretary of Social Development, PROSPERA | July 2013 – January 2018
Management, maintenance and support of the program's information systems. I supervised the correct functioning of the technological infrastructure (hardware, software, networks and databases), providing technical support to users and resolving incidents. I managed technological resources and generated technical and analytical reports for decision making. My role was key in the protection of data and the fulfillment of the operational objectives of the program.

ACADEMIC BACKGROUND

University of Sonora | August 2022 – July 2026
PhD in Nanotechnology
Thesis: *Structural, Electronic and Magnetic Properties for FelComNin Clusters (l+m+n=38) with DFT Studies*

University of Sonora | August 2020 – July 2022
Master's Degree in Nanotechnology
Thesis: *Analysis of the Potential Energy Surface and Search for Transition States in Clusters of Atoms of Bimetallic Nanoalloys Pd12Pt1*

University of Sonora | August 2000 – May 2005
Industrial and Systems Engineering

CERTIFICATES AND ADDITIONAL COURSES

- **Coursera:**
  - Microsoft Python Development Professional Certificate:
    - Python Programming Fundamentals
    - Data Analysis and Visualization with Python
    - Automation and Scripting with Python
    - Web Development with Python
    - Advanced Python Development Techniques
    - Python Project Development
- **Platzi:**
  - Basic Programming Course
  - Python Fundamentals
  - Python: Comprehesions, Functions, and Error Handling
  - Object Oriented Programming and Algorithms in Python
  - English Course for Developers
- **Unity:**
  - Unity Essentials Pathway (Game Development with Unity and C#)

LANGUAGES

- Native Spanish
- English TOEFL-ITP & Oxford level B2

PROJECTS

Cluster Web Lab 🧪
Cluster Web Lab is a web application designed to visualize, generate, and optimize molecular structures in XYZ format. It leverages Flask for the backend, 3Dmol.js for 3D visualization, and provides an interactive interface for users to work with molecular data.
https://github.com/arturylab/clusterWebLab

slurmLab 🚀
slurmLab is a Python-based GUI application designed to manage and monitor SLURM jobs over an SSH connection. It provides an intuitive interface for executing common SLURM commands and viewing the results in a formatted manner.
https://github.com/arturylab/slurmLab

Study of Reaction Paths with the NEB Method and the Gupta Potential
This project implements a calculation of reaction paths using the NEB (Nudged Elastic Band) method with a customized Gupta potential. This potential is not included in the ASE (Atomic Simulation Environment) library by default, so it has been developed as a replacement for the EMT potential.
The code allows studying transitions between reactive and product states in atomic systems, generating intermediate configurations and evaluating the potential energy along the reaction path.
https://github.com/arturylab/reaction-pathway
A scientific article based on this project is currently in progress.