V. Franco Matzkin

ML & Computer Vision Specialist
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PROFESSIONAL SUMMARY

Machine Learning Specialist with 5+ years of experience in AI, deep learning, and Python development, specializing in medical image processing. PhD candidate skilled in implementing and optimizing ML models. Strong foundation in software engineering principles and full development lifecycle. High aptitude for learning cutting-edge technologies, with keen interest in expanding to new domains such as LLMs and other emerging AI fields. Eager to leverage versatile skill set and quick learning ability to drive innovation in ML engineering and software development across various industries.

PROFESSIONAL EXPERIENCE

AI Research Engineer 2019 - Present
sinc(i), Santa Fe, Argentina

- Developed a PyTorch-based deep learning system for automatic skull reconstruction and implant generation, potentially reducing surgical planning time in cranioplasty procedures.
- Implemented advanced calibration techniques to quantify and reduce uncertainty in medical image segmentation, enhancing diagnostic reliability.
- Collaborated on international research projects, resulting in 3 publications in top-tier conferences and journals, including MICCAI and IEEE Transactions on Medical Imaging.
- Mentored junior researchers and supervised undergraduate thesis projects in AI and medical imaging.

Teaching Assistant 2022 - Present
Facultad de Ingeniería y Ciencias Hídricas (UNL), Santa Fe, Argentina

- Lead instructor for Programming Technologies course, teaching 3rd-year Computer Engineering students advanced concepts in Object-Oriented (Java, Python), Functional (Scheme), and Logic (Prolog) programming paradigms.
- Developed comprehensive educational materials and practical guides, enhancing students' understanding of complex programming concepts.

Research Intern Jan 2023 - Jul 2023
École de technologie supérieure (ÉTS), Montreal, Canada

- Conducted cutting-edge research on uncertainty quantification in deep learning models for medical diagnosis at the LIVIA laboratory.
- Participated in the "Emerging Leaders in the Americas Program" sponsored by the Canadian government.

Software Engineering Intern Jan 2019 - Feb 2019
Auravant, Buenos Aires, Argentina

- Developed image segmentation algorithms using computer vision and deep learning techniques for agricultural applications, improving crop analysis efficiency.

TECHNICAL SKILLS

AI & Machine Learning: Deep Learning, Neural Networks, (**PyTorch, TensorFlow, Keras, Scikit-learn, MLflow**), Computer Vision (**OpenCV**), Transformer Models, Uncertainty Quantification

Medical Imaging: CT, MRI, X-ray analysis, Image Segmentation (**U-Net**), Medical Image Processing (**SimpleITK**), Image Registration (**SimpleElastix, ANTs**)

Programming & Development: Languages: (**Python, Java, C++, R, MATLAB, Scheme, Prolog**), Software Engineering Best Practices, Version Control (**Git**), Debugging & Refactoring

Data Science & Analytics: Data Processing & Modeling, Statistical Analysis, (**NumPy, Pandas, SciPy**)

High-Performance Computing: GPU Clusters, (**Slurm Workload Manager**), ssh

Programming Paradigms: Object-Oriented Programming, Functional Programming, Logic Programming

Database Systems (**SQL**)

Web Technologies: (**HTML, CSS, PHP**, base experience)

Tools & Environments: (**Jupyter Notebooks, Google Colab, LaTeX, Microsoft Office**)

Operating Systems: (**Linux, Windows**)

Soft Skills: Research & Publication, Mentorship & Teaching, Problem Solving, Teamwork & Collaboration

EDUCATION

Ph.D. in Engineering 2019 - 2025 (Expected)
Specialization: Signals, Systems, and Computational Intelligence
Universidad Nacional del Litoral, Argentina
Some of the courses taken:

- Software Design for Scientific Computing
- Selected Topics in Machine Learning
- Matrix Algebra for Data Science
- Advanced Signal Processing
- Computer Vision
- Applied Statistics
- Applied Mathematics

B.Eng. in Computer Engineering 2013 - 2019
Facultad de Ingeniería y Ciencias Hídricas (UNL), Argentina
Education in Computer Engineering covering various domains, including:

- Software Engineering
- Digital Electronics
- Digital Signal Processing
- Computational Mechanics
- Computer Graphics
- Computational Intelligence
- Image Processing

SELECTED PROJECTS

1. Automated Cranial Implant Design: Developed a deep learning-based system for automatic skull reconstruction and implant generation in CT images using PyTorch.
2. Uncertainty Quantification in Medical Image Segmentation: Implemented advanced calibration techniques for deep learning models to enhance the reliability of AI-assisted diagnoses in clinical settings.

PUBLICATIONS & PATENTS

Author of 3 peer-reviewed publications in international conferences and journals, including MICCAI and IEEE Transactions on Medical Imaging. (Google Scholar Profile)

LANGUAGES

Spanish (Native), English (Full Professional), Italian (Full Professional), French (Basic)