FIDEL OMAR TITO CRUZ

Residency: Lima, Perú Email: ftitoc@uni.pe Phone: +51 946648846

Education

Universidad Nacional de Ingeniería (UNI) , Lima - Perú *Aug 2016 - Jul 2021*
B.S. Mechatronics Engineering
Scholarship student - Beca Permanencia de Estudios
Rank : 5/43 Overall, 1st place in my third yeard and 2nd place in my second year of college

Colegio Mayor Secundario Presidente del Peru , Lima - Perú *Mar 2013 - Dec 2015*
International Baccalaureate Diploma obtained (IB Program)
Fully funded high school scholarship student selected from all public high schools in Peru (1st and 2nd places only)

Research Experience

PUBLICATIONS | Google Scholar

[1] F. Tito, R. Doloriet, A. Guardia, J. Francia, "A comparison of Gain Scheduling PID and μ-Synthesis Robust Level Control for a Conical Tank System " IEEE XXVIII International Conference on Electronics, Electrical Engineering and Computing (INTERCON) 2021, Lima, Perú.

[2] M. Nekoui, F. Tito, L .Cheng , "EAGLE-Eye: Extreme-posed Actions Grader with a detailed Look from the bird's-Eye view ". IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2021, Waikoloa, Hawaii, USA.

[3] M. Nekoui, F. Tito, L .Cheng, "FALCONS: FAst Learner-grader for CONtorted poses in Sports". Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops , 2020, Washington USA.

RESEARCH LABS

Vision and Learning Lab - Canada - Advisor: Dr. Li Cheng *Jan 2020 - Apr 2020*
University of Alberta Research Experience Program (UARE) - Internship
Topic: Pose estimation for extreme poses. Keywords: pose estimation, Pytorch, computer vision, deep learning, object detection, STGCN, and image processing.

Research Lab Smart Machines - Advisor: Dr. Nicolas Oudart *Sep 2017 - Aug 2019*
Centro de Tecnologías de la Información y Comunicaciones (CTIC) UNI
Topic: Cansat prototype, experimental rockets and stratospheric ballon. Keywords: Digital signal processing, interface development, and localization based on MPU sensor signals.

RESEARCH PROJECTS

- **Medical Image Alignment with Deep Learning** *Aug 2021*
Worked in : Neuromatch Academy
The research aimed to apply transformations over a MRI dataset with visual deformations. I employed a deep learning model based on VoxelMorph to successfully reduce variance between subjects by applying non-rigid transformations on 3D images.

- **Advanced Control Techniques for Conical Tanks** *May 2021 - Aug 2021*
Worked in : Universidad Nacional de Ingenieria
The research aimed to compare two advance control techniques to control the level on a conical tank. I developed a robust μ-synthesis controller to make this comparison in order to maintain level control in conical tanks.

- **Path Planning Algorithm for Indoor Navigation** *Oct 2020 - Aug 2021*
Worked in : Vicerrectorado de Investigacion (VRI) UNI
The project sought to implement a mobile robot based on perception and control modules. I implemented a perception module using UNet for image segmentation and DQN for pathfinding optimization, enabling a mobile robot to navigate indoors using a Jetson Nano.

- **Pose Estimation for Complex Sports Actions** *Jan 2020 - Nov 2020*
Worked in : University of Alberta Canada
The research project sought to develop a new method for action quality assessment on sports. To analyse the complex action performed, I developed a human pose estimation module based on HRnet models to analyze complex sports actions , trying also other models like OpenPose, Simple Baselines, and AlphaPose. Additionally, I implemented a visualization tool to check our results, an annotation tool to create our ExPose and G-ExPose datasets for extreme poses, and a DiMP-based module to enhance our pose estimation results using object detection.

- **Stratospheric Balloon Design and Implementation** *May 2018 - May 2019*
Worked in : Centro de Tecnologias de la Informacion y Comunicaciones (CTIC) UNI
The research project sought to implement a stratospheric balloon carrying sensors for weather monitoring. I worked on sensor programming, signal processing, and the development of a real-time balloon movement monitoring interface.

DATASETS CREATED
Human Pose datasets for contortive poses of a competitive sports activity. This includes 2D annotated images sourced from moving camera videos
- Extreme Poses (ExPose) Dataset : It contains 3000 diving and 1000 gym-vault 2D annotated images.
- Generalized ExPose (G-ExPose) Dataset : It contains 2500 snowboarding, 2000 skiing, 1500 synchronized diving, and 1500 gym-vault 2D annotated images

Professional Experience

INTERCORP - Machine Learning Engineer *Sep 2022 - Present*
Relevant tasks :
- Supervising ML deployment. I work with an internal MLOps framework to easily deploy ML projects and APIs. Last project: Development and deployment of a client-product recommender model using Kubeflow pipelines for automated execution. Currently, I am using actively Google Cloud Platform services.
- Leveraged GenerativeAI for innovative analytics. Last projects: Development of an LLM-powered system to automate a full product list for customers in a marketplace only using a search engine. Development of an LLM-based solution to enable clients without prior programming knowledge to analyze tables quickly and easily.
- Optimized processes for enhanced efficiency. Last projects: Development of an incremental sales calculation algorithm for big data, enabling rapid AB testing through efficient algorithms, leading to substantial performance gains

DATAPATH - Educator - Part Time *Aug 2023 - Present*
Relevant tasks :
- I teach undergraduate and recent graduate Bachelor's degree holders in the Data Engineer Program (DEP) and Machine Learning Engineer Program (MLP), helping them start their careers in Artificial Intelligence (AI). I cover topics like algorithms, the basics of machine learning, how to put models into practice, and how to create APIs

LEASEIN - Data Scientist *Oct 2021 - Aug 2022*
Relevant tasks :
- Explore and analyze data. Last projects: Applying clustering techniques for lead segmentation. Applying statistical analysis for fraud detection.
- Build predictive models. Last projects: Development of an automated client scoring evaluator that leverages variables to determine rental conditions. Development of an NLP-based resume screening program to reduce the time to determine candidate qualifications.

- Automate processes. Last projects: Development of a program to send massive emails and whatsapp message to customers. Implementation of a data extraction program using RPA.

RABIT TECH - Developer and Educator *Apr 2021 - Sep 2021*

Relevant tasks :

- Youth programming and robotics educator. Passionate about fostering STEM education among young minds, I taught programming and robotics courses to students aged 5-14.
- Web development. I developed front-end and back-end code for the implementation of the main web page.

Achievements, Honors and Awards

- Student selected by Opportunity Funds Program - EducationUSA *Mar 2023*
- Student selected by Neuromatch Academy Deep Learning 2021 *Jul 2021*
- Selected by University of Alberta Research Experience Program (UARE) internship *Oct 2019*
- 2nd place, CSpace International Competition 2019 France - CANSAT Category. *Jul 2019*
- Scholarship - Beca Permanencia de Estudios 2018 given by PRONABEC *Sep 2018*
- 1st Place CONEIMERA 2018 - Robotics Competition, Micromouse Category *Sep 2018*
- 1st Place INTERCON 2018 - Robotics Competition, Micromouse Category *Jul 2018*
- Participation International Competition CSpace 2018 France - Category Rocket *Jul 2018*
- Fully funded high school scholarship, given by Ministry of Education Perú *Feb 2013*

Online Courses

- Full Stack Developer Bootcamp. Given by: Make It Real, Aug 2021 - Jun 2022
- Deep Learning Summer School. Given by: Neuromatch Academy, Aug 2021
- How to Win a Data Science Competition - Given by: Coursera, 2021
- Advanced Computer Vision with TensorFlow - Given by: Deeplearning.ai Coursera, 2021
- Deep Learning Specialization (5 courses) Given by: Deeplearning.ai Coursera, 2019
- Build Basic Generative Adversarial Networks (GANs) Given by: Deeplearning.ai Coursera , 2020
- Reinforcement Learning Specialization. Given by: University of Alberta Coursera , 2020
- TensorFlow in Practice Specialization. Given by: DeepLearning.ai Coursera,2020
- Machine Learning Course, Stanford University Coursera,2018

Extra-curricular Activities

- Mentee on LatinX in AI Mentoring Program. Current member of LatinX in AI Community
- Vice Chair IEEE EMBS UNI 2020: In charge of organizing meetings, seminars and talks, also documentation and proposing new projects in search of funding.
- Participant in Festival of Undergraduate Research and Creative Activities (FURCA) - University of Alberta, Canada 2020
- Participant in Serendipity Scientific Mentorship Program - 2019
- Participant in Clubes de Ciencia 2017
- Volunteer at InspírateUNI 2017: Vocational orientation program for UNI applicants

Skills

Python, C++, HTML, CSS, JavaScript, Pytorch, Tensorflow , OpenCV, Scikit Learn, React, ExpressJS, SQL, Big Data, Web scrapping, Google Cloud Platform (GCP), Bigquery, Kubeflow, MLflow, Docker, Git, Kubernetes, LangChain, MongoDB, RPA, MATLAB, Linux, LabVIEW , AutoCAD, LaTeX

Languages

- English , Advanced Level - TOEFL iBT 97/120, TOEFL iBT MyBest 101/120
- Spanish , Native