FIDEL OMAR TITO CRUZ

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Education

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

Research Experience

PUBLICATIONS

[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 " Proceedings of the 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 ". Proceedings of the 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 use a deep learning model, VoxelMorph, on an MRI dataset to reduce variance among subjects by applying non-rigid transformations to 3D images.

- **Advanced Control Techniques for Conical Tanks** *May 2021 - Aug 2021*
Worked in : Universidad Nacional de Ingenieria
The research aimed to compare control techniques for regulating conical tank levels, utilizing a robust μ-synthesis controller to ensure consistent level control.

- **Path Planning Algorithm for Indoor Navigation** *Oct 2020 - Aug 2021*
Worked in : Vicerrectorado de Investigacion (VRI) UNI
The project aimed to deploy a mobile robot integrating perception and control modules, featuring a UNet-based perception module for image segmentation and DQN for optimized pathfinding, it enabled indoor navigation employing a Jetson Nano.

- **Pose Estimation for Complex Sports Actions** *Jan 2020 - Nov 2020*
Worked in : University of Alberta Canada
The research aimed to develop a novel sports action quality assessment method by creating a human pose estimation module using a HRnet based model, exploring OpenPose, Simple Baselines, and AlphaPose to analyze complex sports actions. It integrated visualization, annotation, dataset creation tools and a DiMP-based module.

- **Stratospheric Balloon Design and Implementation** *May 2018 - May 2019*
Worked in : Centro de Tecnologias de la Informacion y Comunicaciones (CTIC) UNI
The research aimed to implement a stratospheric balloon with weather sensors. I focused on sensor programming, signal processing, and creating a real-time interface to monitor the balloon's movement.

DATASETS CREATED
Human Pose datasets for contortive poses of a competitive sports activity. This includes 2D annotated images sourced from moving camera videos : **Expose Dataset** and **G-ExPose Dataset**

Professional Experience

INTERCORP - Machine Learning Engineer *Sep 2022 - Present*
- Overseeing ML deployment, utilizing an internal MLOps framework for ML project and API deployment, automating recommendation models via Kubeflow pipelines on Google Cloud Platform, and optimizing processes.
- Leveraged GenerativeAI to automate a marketplace's product list through a search engine and enabled non-programmer clients to swiftly analyze tables using an LLM-based solution.

DATAPATH - Educator - Part Time *Aug 2023 - Present*
- I teach undergraduate and recent graduate Bachelor's degree holders during a bootcamp. I cover topics like algorithms, the basics of machine learning, how to put models into production, and how to create APIs

LEASEIN - Data Scientist *Oct 2021 - Aug 2022*
- Perform data analysis, utilizing clustering for lead segmentation and applying statistical methods for fraud detection.
- Create predictive models, including an automated client scoring evaluator for rental conditions and an NLP-based resume screening program for efficient candidate qualification assessments.

RABIT TECH - Developer and Educator *Apr 2021 - Sep 2021*
- Youth programming and robotics educator. Fostering STEM education among young minds, I taught programming and robotics courses to students aged 5-14.
- Web development. A virtual classroom was developed, including frontend and backend.

Achievements, Honors and Awards

- Student selected by Opportunity Funds Program - EducationUSA *Mar 2023*
- 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*
- Fully funded high school scholarship, given by Ministry of Education Perú *Feb 2013*

Extra-curricular Activities

- Mentee on LatinX in AI Mentoring Program. Current member of LatinX in AI Community
- Vice Chair IEEE EMBS UNI 2020
- Participant in Festival of Undergraduate Research and Creative Activities (FURCA) - University of Alberta, Canada 2020
- Participant in Serendipity Scientific Mentorship Program - 2019
- 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, Google Cloud Platform (GCP), Bigquery, Kubeflow, MLflow, Docker, Git, Kubernetes, LangChain, MongoDB, MATLAB, LaTeX

Languages

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