NIKOLAY PRIETO

Robotics and Machine Learning Engineer

HARD SKILLS

Python	7+ yrs
Linux	5+ yrs
Open Source Tools	5+ yrs
Git	4+ yrs
ROS	3+ yrs
C++	1+ yrs

CONTACT

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PROFILE

Ph.D. candidate with strong knowledge in design optimization, robotics, and data science. I have got work experience in project management, research, and as a professor. I have excellent skills in object-oriented programming, machine learning, data science, Industrial Internet of Things (IIoT), computational robotics, computer vision, maths, embedded systems, statistics, project management, and physical computer modeling. Nowadays, I am looking for a job in the tech industry and/or research.

WORK EXPERIENCE

Universidad de San Buenaventura Jul 2019 - NOW
Computational Robotics and AI

Associate professor of undergraduate and graduate program in the mechatronics department. My research is focused on the development of machines (robots) with Computer Vision and/or Machine Learning integration algorithms.

- Non Linear control of the ankle dynamic joint stiffness predicted via XGBoost algorithm.
- Development of an autonomous mobile robot for food services.
- Development of a 3D printer with IoT integration.
- Visual Inertial Navigation systems for aereal and ground autonomous vehicles.

Technologies include:

- Python for custom tool development.
- Pandas, Scikit-learn, OpenCV, ROS, Gazebo, jupyter, Google Colab, keras, tensorflow, CAD.

Achievements include:

- Two (2) Industrial Prototypes.
- One (1) Back-end application.

Universidad Nacional de Colombia Aug 14 - Aug 19
Engineering Design researcher

Doctoral researcher focused on the analysis of the ankle dynamics and design of ankle-foot prostheses using advanced design methods as surrogate models and transient simulations of solid materials.

PERSONALITY TRAITS

Reserved	Energetic
Cautious	Curious
Spontaneous	Organized
Competitive	Friendly
Avid	Modest
Confident	Nervous

EDUCATION

2014 - 2021

Ph.D in Mechatronics Engineering.
Universidad Nacional de Colombia

A complete characterization of the ankle Dynamic Joint Stiffness through the data analysis of human gait datasets available in the literature was performed at different instances. A predictor with ML algorithms of the ankle DJS based on the anthropomorphic human features was proposed. A dynamic computational framework for obtaining the best ankle-foot passive prosthesis was developed with FEM tools and optimized through Bayesian techniques.

2011 - 2014

M.Sc. in Mechatronics Engineering
Universidad Militar Nueva Granada

I developed an ankle-foot prosthesis for Colombian runners with optimal combination of carbon-fiber laminates.

2004 - 2009

B.E. in Mechatronics.
Universidad de San Buenaventura

- An ankle dynamic joint stiffness profile predictor from anthropomorphic measurements with ensemble algorithms.
- An optimal ankle-foot prosthesis shape generator according to their age, race and gait speed using Bayesian optimization.

Technologies include:

- Python for custom tool development.
- ANSYS, LS-DYNA, Linux environment.
- Use of IU servers to enhance the process performance.
- QD, pandas, scikit-learn, scikit-posthoc, scikit-fda, VTK, scipy, researchpy, google colab, tensorflow, keras.
- Git for configuration and documentation versioning.

Achievements include:

- Best GPA 2015-I during doctoral studies.
- Full scholarship from MINCIENCIAS for PhD studies.
- Two (2) back-end open source applications to be used by the research community.

Indiana University Purdue University Indianapolis. Jun 18 - Dec 18
Research Assistant

I performed activities including the following:

- Design and construction of a catheter holder for medical applications through additive manufacturing and injection plastic processes.
- Physically testing of the medical devices at different configurations.
- Attend lectures in relevant topics such as topology optimization.

Technologies include:

- Linux and Python for custom Tool development.
- LS-DYNA, BayesOpt, scikit-optimize.

Achievements include:

- One (1) final report of medical design.
- One (1) Industrial prototype to begin test on users.

Military Industry of Colombia. Feb 09 - Sep 14
Research and Development Project Manager

Administrative and technical management of projects focused on researchand technological development in the defense field. The duties involved were:

- Management of five (5) research projects. Total investment of two (2) million dollars.

CERTIFICATES

Algorithms and data structures Specialization

Coursera
1/4 courses

Algorithmic techniques for solving various computational problems

Reinforcement Learning Specialization

Coursera
1/4 courses

Skills to implement a complete RL solution and understand how to apply AI tools to solve real-world problems.

Deep learning Specialization

Coursera
1/4 courses

A foundational program that will help you understand the capabilities, challenges, and consequences of deep learning.

- Monitoring transfer of the generated know-how to the implied factories.
- Technological assessment,industrial property, engineering design and manufacturing of prototypes.

Technologies include:

- Microsoft Project, Office 365.
- Inventor, solidworks.
- Altium Designer, Matlab.

Achievements include:

- Two (2) TV operated mobile robot prototypes.
- A variety of prosthetics for lower and upper limbs.
- Development of command and control systems for the Colombian navy.
- One (1) military vehicle prototype.
- Master Scholarship by the Military Industry.