# ANGEL JOSUE VALENCIA ARMIJOS

contact@angelvalencia.me

www.angelvalencia.me ◇ linkedin.com/in/angel-j-valencia/

## EDUCATION

**University of Ottawa** — Sep 2020 - Present
Ph.D. Electrical & Computer Engineering — *Ottawa, Canada*

**University of Ottawa** — Jan 2018 - June 2020
M.A.Sc. Electrical & Computer Engineering — *Ottawa, Canada*

**Escuela Superior Politécnica del Litoral** — May 2011 - Sep 2016
B.Eng. Electronics & Automation — *Guayaquil, Ecuador*

## SKILLS

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|---|---|
| **Programming** | Python, C/C++, MATLAB, Shell, Markdown, LaTex |
| **Libraries** | SciPy, PyTorch, OpenCV, Open3D, PCL, ROS |
| **Simulation** | IsaacSim, Bullet, V-REP |

## EXPERIENCE

**Research Internship** — Nov 2023 - Present
MDA Space Ltd — *Kanata, Canada*

- Developed sensor motion compensation methods for space applications

**Research Internship** — Jul 2022 - October 2023
Spectronix Inc — *Gatineau, Canada*

- Developed software for gesture and behavior recognition applications

**Graduate Research Assistant** — Sep 2020 - Present
SMART Lab - uOttawa — *Ottawa, Canada*

- Investigated methods for robotic manipulation of deformable objects

**Laboratory Instructor** — Apr 2017 - Jan 2018
FIEC - ESPOL — *Guayaquil, Ecuador*

- Managed laboratory resources and taught practical classes

**Undergraduate Research Assitant** — Jan 2016 - Jan 2017
CRV Lab - ESPOL — *Guayaquil, Ecuador*

- Developed a fruit detection system for robotic grasping

## TEACHING

**University of Ottawa**

- Graduate TA, DTI5126: Fundamentals of Applied Data Science — Summer 2022
- Graduate TA, IAI5101: Foundations of Machine Learning — Winter 2022
- Graduate TA, CEG4158: Computer Control in Robotics — Fall 2018 - 2023
- Graduate TA, ELG5163: Machine Vision — Winter 2019 - 2022

## SCHOLARSHIPS & AWARDS

| | |
|---|---|
| Best Poster Award (2nd Place) in TDTS Category - uOttawa Graduate Poster Competition | 2024 |
| uOttawa Admission Scholarship | 2020 |
| uOttawa International Doctoral Scholarship | 2020 |
| CALDO/SENESCYT Ecuador Scholarship | 2017 |

## PUBLICATIONS

### Conferences

- G. Rouhafzay, **A. J. Valencia**, S. Rowlands, S. Yang, P. Payeur, "Automatic Real-Time Fever Screening in a Thermal Video Surveillance System," IEEE SAS, 2023.
- **A. J. Valencia**, P. Payeur, "Deformation Modeling for the Robotic Manipulation of 3D Elastic Objects using Physics-Informed Graph Neural Networks," IEEE CRV, 2023.
- **A. J. Valencia**, F. Nadon, P. Payeur, "Toward Real-Time 3D Shape Tracking of Deformable Objects for Robotic Manipulation and Shape Control," IEEE SENSORS, 2019.
- D. Plaza, R. M. Idrovo, **Angel J. Valencia**, C. Salazar Lopez, "Enhancing the Performance of the Particle Filtering Optimization Algorithm for the Tuning of PID Controllers", ICCMA, 2017.
- **A. J. Valencia**, R. M. Idrovo, A. D. Sappa, D. Plaza, D. Ochoa, "A 3D vision based approach for optimal grasp of vacuum grippers", IEEE ECMSM, 2017.

### Journals

- **A. J. Valencia**, P. Payeur, "Combining Self-Organizing and Graph Neural Networks for Modeling Deformable Objects in Robotic Manipulation," Front. Robot. AI, 2020.
- F. Nadon*, **A. J. Valencia***, P. Payeur, "Multi-modal Sensing and Robotic Manipulation of Non-Rigid Objects: A Survey," Robotics, 2018.

### Thesis

- **A. J. Valencia**, "3D Shape Deformation Measurement and Dynamic Representation for Non-Rigid Objects under Manipulation," MASc Thesis, University of Ottawa, 2020.
- **A. J. Valencia***, R. M. Idrovo*,"Diseño e implementación de un sistema de reconocimiento y manipulación de frutas utilizando visión artificial y brazo robótico industrial," BEng Thesis, Espol, 2016.

## POSTERS, TALKS & VIDEOS

### Posters

- **A. J. Valencia**, R. M. Idrovo, A. D. Sappa, D. Plaza, "A Fruit Recognition and Handling System Using Artificial Vision and Industrial Robot", IEEE ETCM, 2016.

## GRADUATE COURSES

### University of Ottawa

| | |
|---|---|
| • ELG6184: Pattern Classification and Experiment Design | Winter 2018 |
| • ELG5163: Machine Vision | Winter 2018 |
| • CSI5138: Introduction to Deep Learning and Reinforcement Learning | Fall 2018 |
| • ELG5161: Robotics Control, Sensing and Intelligence | Fall 2018 |
| • ELG5378: Image Processing and Image Communications | Winter 2019 |
| • CSI5151: Virtual Environments | Fall 2020 |
| • ELG5218: Uncertainty Evaluation in Machine Learning | Winter 2021 |
| • ELG6187: Sensor Fusion for Autonomous Systems | Winter 2021 |

## LANGUAGES

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|---|---|
| **English** | Fluent |
| **Spanish** | Native |
| **French** | Basic |