# EDGAR R. CHAVEZ

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## EDUCATION

*Master of Computer Science University of Texas at Arlington* — *Aug 2022 – Present*
*Bachelor of Science in Computer Science Wichita State University* — *Aug 2018 – May 2022*

## WORK EXPERIENCE

***ServiceLink, Arlington, TX***
*Quality Control Researcher* — *Apr 2024 - Present*

- **Developed** a multiclass classification model using neural networks to predict flood risk for properties, leveraging GIS data.
- **Optimized model** using Ray Tune for hyperparameter tuning, and data preprocessing strategies
- **Integrated geospatial data** from FEMA NFHL Flood Hazard Zones and ArcGIS into the neural network model to enhance accuracy.
- **Implemented** training pipelines with PyTorch Lightning and Ray Tune for hyperparameter search.
- **Collaborated** with teams in diverse specialties to deploy the model as an internal tool for flood risk analysis.
- Achieved a **prediction accuracy of 99.1%**

***University of Texas at Arlington***
*Graduate Teaching Assistant* — *Aug 2022 – May 2023*

- Grade projects, assignments, exams and provide constructive feedback to enhance student learning.

***NIAR, Wichita, KS***
*Student Lab Technician at NIAR - Robotics and Automation Lab* — *Feb 2020 – Apr 2021*

- **Developed** programs for programmable logic controllers.
- **Developed and optimized** Visual Basic macros for Excel to enhance lab efficiency.
- Operating and programming both collaborative and industrial mobile robots.

***Ennovar, Wichita, KS***
*Student Contractor at Textron Aviation Help Hangar* — *July 2019 – Jan 2020*

- Level 1 – 2 Customer Support Representative/Technical Support Engineer and provide broad application support on SAP, Exchange, Outlook Mobile, and MS office products.
- Provide level 1 Windows 7, 10, MS Office support on deskside, laptop, surface devices, provide level 1 mobile support and hardware support/troubleshooting.

## PROJECTS

***Wichita State University, School of Computing*** — *Jul 2021 – Aug 2022*
***Title**: Touch Detection in Augmented Omni-Surface for Human-Robot Teaming*
***Journal**: The Journal of Management and Engineering Integration, Vol. 15, No. 2 Winter 2022*

- **Developed** an interactive touch detection system using RGB-D sensors and Convolutional Neural Networks for human-robot teaming on arbitrary surfaces.
- **Designed** and implemented a fingertip detection system utilizing the VGG-16 deep learning architecture, enhancing human-robot collaboration without the need for refurbishing surfaces.
- Achieved **82.87% F1-score** in simulations across different surfaces.

***Wichita State University, Applied Quantum Computations Research Project*** — *Aug 2021 – Dec 2021*

- **Developed** and compared image classification models using Quantum Convolutional Neural Networks and traditional neural networks for the MNIST dataset.
- **Implemented** the models on the IBM Q hardware using the Qiskit module in Python, exploring the use of quantum computing for image recognition tasks.
- **Evaluated** model performance on 60,000 training images and 10,000 testing images.
- Demonstrated the potential of quantum machine learning by comparing performance metrics between quantum and classical approaches.

## SKILLS

- **Programming Languages:** Proficient in Python, SQL, C++, C# and Visual Basic.
- **Frameworks**: Skilled in TensorFlow and PyTorch; experienced with Pandas and NumPy for data analysis.
- **Development Tools:** Experience in version control with Git and proficient in Linux environments
- **Research and Academic Writing:** Experience in conducting research and academic writing, with exposure to composing and editing.
- **Language:** Fluent in Spanish