

# Amir Ebrahimnezhad

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## R&D Technician

Experienced automation engineer with expertise on Beckhoff TwinCAT, Schneider Machine Expert, Siemens TIA Portal. Developed three ROS packages for industrial crane control, UAV simulation and autonomous pursuit. Proficient in C++, Python and deep learning packages.

## EDUCATION

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### University of Alberta

Master of Science

Mechanical Engineering

Thesis: Deep Learning in Autonomous UAV Pursuit; Cumulative GPA: 3.8/4.0

Edmonton, AB

Sep 2020 – Apr 2023

### K. N. Toosi University of Technology

Bachelor of Science

Electrical Engineering

Cumulative GPA: 3.44/4.0

## WORK EXPERIENCE

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### Accurpress

R&D Technician

Surrey, BC

Sep 2020 – to date

- **PLC Programming:** Developed and implemented PLC programs using TwinCAT by Beckhoff and Schneider Machine Expert, enhancing automation processes and system efficiency.
- **HMI Programming:** Designed and programmed Human-Machine Interfaces (HMIs) utilizing WPF .NET 8, creating intuitive and user-friendly interfaces for operators. Performed novel real-time UAV pursuit algorithms
- **Thickness Measurement:** Led projects focused on thickness measurement using Baumer cameras, ensuring precise and reliable material thickness detection and quality control.
- **Pole Bending Alignment:** Executed alignment projects involving pole bending with Omron cameras, optimizing equipment alignment and reducing errors in production.

### Mechatronic Systems Lab

Software Engineer

Edmonton, AB

Sep 2020 – to date

- Developed three C++/Python/PyTorch libraries for novel 3D bounding box detection and state estimation
- Implemented real-time vision-based pose and state estimation algorithms
- Performed novel real-time UAV pursuit algorithms

## SELECTED PROJECTS

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### Anafi ROS

- Developed a ROS package in C++ and Python for UAV control and pursuit.
- Real-time pose estimation, state estimation, autonomous control and pursuit of target drones.
- Real-time object detection and 3D bounding box estimation using PyTorch.

### Baxter ROS

- Co-developed a ROS package in C++ and Python for a 16-DoF Baxter robot control and angle estimation.
- Real-time pose, state and angle estimation in addition to control and position control of the Baxter.

## LANGUAGE SKILLS

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**English:** Fluent

**French:** Intermediate

## TECHNICAL SKILLS

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**General:** SLAM, Computer Vision, Deep Learning, Teamwork, State Estimation, PCL

**Languages:** C, C++, C#, Java, Python, SQL, Ladder, SCL, MATLAB

**Libraries:** PyTorch, Keras, Tnesorflow, NumPy, Matplotlib, CV2, Eigen, TF

**Tools:** Git, Docker, AWS, Gitlab CI, Linux, Olympe, Sphinx, MAVROS, MAVLINK, ROS, Gazebo, OpenCV