# Amir Ebrahimnezhad

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**Automation Engineer**

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

## EDUCATION

**University of Alberta** — Edmonton, AB
Master of Science — Sep 2020 – Apr 2023
Mechanical Engineering
Thesis: Deep Learning in Autonomous UAV Pursuit; Cumulative GPA: 3.8/4.0

**K. N. Toosi University of Technology**
Bachelor of Science
Electrical Engineering
Cumulative GPA: 3.44/4.0

## WORK EXPERIENCE

**Accurpress** — Surrey, BC
Automation Engineer — Aug 2023 – Oct 2024

- **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.
- **Robotics Integration**: Developing and integrating full-robotic automated metal bending with Universal Robots UR10 and Accell-E and Rocker Arm press brakes.

**Mechatronic Systems Lab** — Edmonton, AB
Software Engineer — Sep 2020 – Sep 2023

- 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

**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

**English**: Fluent
**French**: Intermediate

## TECHNICAL SKILLS

**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