Amir Ebrahimnezhad

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# R&D Technician

Experienced automation 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

R&D Technician 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** Edmonton, AB

Software Engineer 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

## 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