# Ali Esbak

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## Professional Summary

Highly skilled engineer with over 16 years of experience in control systems, instrumentation, and software development. Proficient in machine learning, artificial intelligence, and advanced data analysis. Demonstrated expertise in Python, Java, C++, and a wide range of ML frameworks. Proven track record of leading teams and managing complex projects in various industries.

## Technical Skills

• Programming Languages: Python, Java, C++, SQL  
• Machine Learning: AI/ML model development, data management, pre-processing, credit risk modeling, fraud detection, time series analysis, customer segmentation  
• Tools & Frameworks: TensorFlow, scikit-learn, Pandas, NumPy, Docker, OpenCV, LabVIEW  
• Control Systems: PLC programming (Allen Bradley, Beckhoff), HMI (FactoryTalkView, TwinCAT), industrial networking (EtherCAT, ADS)  
• Software Development: OOP principles, design patterns, DevOps tools (Docker)

## Relevant Experience

**Lead Software and Controls Engineer, General Fusion**June 2020 - Present  
• Designed control systems for the Fusion Demonstration Plant  
• Developed a large Python application for data collection and analysis, integrating multiple devices  
• Managed a team of 12 (7 interns, 5 employees)  
• Applied machine learning techniques for data analysis and optimization  
• Implemented AI models for predictive maintenance and system optimization

**Control System Developer, Vanrx Pharmasystems Inc.**2018 - 2020  
• Developed HMI applications and data historians for pharmaceutical robotic systems  
• Implemented PLC software improvements in a quality-controlled environment  
• Utilized machine learning models to enhance system performance and reliability

**Industrial Developer, Confirmed Automation Systems**2016 - 2017  
• Programmed PLCs and developed Android applications for industrial automation  
• Led automation projects for industrial systems  
• Applied AI techniques for process optimization and fault detection

## Machine Learning and AI Coursework

• AI/ML Solutions for Financial Services: Implemented and evaluated AI/ML models for financial applications  
• Data Management & Pre-Processing: Developed data pipelines and pre-processing techniques  
• Credit Risk Modeling: Built and tested credit risk models using machine learning algorithms  
• Fraud Detection: Applied advanced ML techniques to detect and prevent financial fraud  
• Time Series Analysis: Forecasted stock prices and analyzed financial time series data  
• Customer Segmentation: Used ML for customer segmentation and targeted marketing strategies