# SAMY TIMALSINA

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## SUMMARY

- 5 Years of Hands-on experience in Software and Industrial automation control systems in the manufacturing industry
- Skills: OOP/Design patterns, PLC Programming, Ignition, Agile, Asp.net web dev, Data structure/Algo, Git
- Software experience: Visual Studio, Azure DevOps, GIT, PostMan, SSMS, RsLogix500, Studio 5000
- Programming languages: C#, .NET, C++, T-SQL, JavaScript, SFC, Structured text, ladder logic, HTML, CSS
- Hardware experience: AB Control Logix, Compact Logix, Siemens, UR Robot, Micro 820, FPGA

## EDUCATION

- **MS Electrical and Electronics Engineering (**GPA: 4.0/4.0) 2016-2018
  Youngstown State University, OH
  Rayen College of Engineering and Technology -ABET Accreditation
  Thesis: Detection of agglomeration in a fluidized bed using structure-function

- **BE Electrical Engineering** (GPA: 3.77/4.0) 2009-2013
  Tribhuvan University, Nepal

## WORKING EXPERIENCE

- **Software Controls Engineer**, Auer Precision, Mesa, Arizona Sept 2019 - Present
  - Developed an Image classification AI model using Background Service in C# and ML.Net Library to automate the manual sorting of Agilent rods by UR robot. This significantly improved sorting accuracy and efficiency.
  - Developed a SQL database mapping between Ignition and PLC tags, wrote the database side stored procedure, and also instantiated the ignition server on an Azure virtual machine.
  - Developed UR robot program plus C# middleware from scratch to handle different waypoint movements when receiving commands from C# application to automate CMM machine to sort different types of rod materials to the respective bin.
  - Developed Windows form app as a middleware service between UR robot and Omroncamera. The app captured film frame barcodes inspected by the camera and stored the captured UID on the Azure SQL database for traceability and record keeping.
  - Designed and deployed RestAPI in Azure to store process data from 10 PLC-controlled automation lines in MongoDB.
  - Developed multi-threaded wrapper application in Windows service using C#, IPG laser controller API, and AB PLC, automating the laser marking process reducing the system downtime, and eliminating the risk of communicating with different laser controllers.
  - Developed time-tracking web application using ASP.NET Core and jQueryin front-end. The application efficiently tracked automation group work hours and project activities, facilitating better resource management.

- **Controls Engineer**, Ajax Tocco Magnethermic, Warren, Ohio June 2019 – Aug 2019
  - Developed user interface HMI program using software packages such as Factory Talk View for Allen-Bradley, WinCC, and TIA portal Siemens PLCs in induction heating, forging, and quenching applications.
  - Led the automation of the welding process using Rockwell PLC, Keyence IV vision system, and IO sensors, effectively preventing the welding of wrong parts and minimizing errors.
  - Collaborated with cross-functional teams of controls engineers, and mechanical engineers to write PLC programs from scratch and integrate it into existing automation lines, ensuring seamless operation.

- **Power Supply Test Engineer**, Ajax Tocco Magnethermic, Warren, Ohio Sept 2018– June 2019
  - Designed electrical schematics and BOM, specifically power and controls for induction heating power supplies using NEC codes and Autocad software.
  - Troubleshooted and tested the power circuit of induction heating power supply and measured the high voltage 480 V AC, 680 V DC with High voltage probe, and 1000 Amps to 10000 Amps current with Rogowski coil.

- **Graduate Assistant**, Youngstown State University, Ohio Aug 2016– Aug 2018
  - Instructed 16 senior undergrad students in Control System and 16 sophomore students in Digital Circuit.
  - Designed controls system Allen Bradley Mirco 820 PLC hands-on lab manual dealing with the control of actuator, closed-loop systems, and PID controllers.
  - Conducted electrical circuit theory labs and helped students use Oscilloscopes, Voltmeters, and Current meters, and graded labs.

- Contributed an ASP.net C# application to the electrical engineering department to record student lab grades and stored them in an SQL database.

➢ **Teaching Assistant**, IOE, Dharan, Nepal Dec 2014– Feb 2016

- Conducted theory classes on control systems, Electrical machines, and Electrical circuit theory for senior and sophomore students
- Designed simulation lab using MATLAB, and C++ to help students understand the closed-loop system and dynamics of the control system
- Conducted labs related to electrical machines such as induction motors, DC motors/generators, and synchronous motors for first-year students

## GRADUATE PROJECTS

- Thesis: Detection of Agglomeration in a Fluidized Bed using Structure Function algorithm Aug 2017- Aug 2018
  (Associated with YSU final year project)
  - Gathered data from Babcock and Wilcox Company of Fluidized-bed system
  - Analyzed data using MATLAB to find the agglomeration before the system went into an unstable condition
  - Link:https://etd.ohiolink.edu/apexprod/rws_etd/send_file/send?accession=ysu1534264606836417&disposition=inline
- Designed and modeled computer systems using FPGA
  (Associated with YSU, Computer Architecture course)
  - Programmed Intel Altera FPGA board using assembly and C++
  - Designed Processing using the SOPC Qsys tool in Quartus
  - Used concept of memory mapping, polling, and interrupt routines in Cyclone II/DE2 series board
- Garage door opener using micro 820 AB PLC
  (Associated with YSU, Controls system course)
  - Developed simulation program using ladder logic program in Micro 820 PLC
  - Mapped IO's using LED light and DC motor to show input/output relationship
- Design of Dynamic voltage restorer
  (Associated with Tribhuvan University final year project)
  - Analyzed voltage sag on distribution feeder during 3-phase ground fault condition
  - Modeled PID controller using Simulink to compensate for voltage lag in the feeder

## CERTIFICATES

- UR robot e-Series Core Track
- Crash course on Robotics and Automation
- Android programming in C#
- Solar PV system design
- Machine learning using C# and ML.NET
- Programming for everybody using Python

## SKILLS

- Passed LinkedIn skill assessment in C#
- Passed LinkedIn skill assessment in Object-Oriented Programming
- Completed online course on Ignition by Inductive automation

## LICENSE

➢ FE Engineer Trainee, NCEES ID 18-708-69 May 2018-Present

## AWARDS

- Graduate Assistantship, YSU Aug 2016 – May 2018
- Partial Scholarship, IOE, Tribhuvan University Dec 2009 – July 2013