Veysi ADIN

Nationality: Turkish **Date of birth:** 17/02/1998 **Gender:** Male

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ABOUT ME

Hey! It's **Veysi ADIN, and** I'm an **Embedded System Engineer** in Sundsvall, Sweden. I'm a Ph.D. student at Mid-Sweden University, and currently, I'm working as a research assistant at Sensor Technology Research Center at Mid-Sweden University. I got my master's degree in the field of robotics and control software development. I enjoy robotics, electronics, DIY projects, and learning new things every day. I like to develop applications that solve real-life problems.

WORK EXPERIENCE

Research Assistant

Mid Sweden University [01/09/2022 – Current]

City: Sundsvall

Country: Sweden

My research focuses on machine learning on embedded systems.

Research Assistant

Korea Institute of Science and Technology [01/09/2020 – 31/08/2022]

City: Seoul

Country: South Korea

I worked on development of control framework for medical robots, using EtherCAT protocol based on CiA402 standard and ROS2 as a middleware running on real-time Linux. As a use case for this control framework, we tested our framework on spine surgery robot being developed in Healthcare Robotics Center.

- I designed several PCBs, including safety watchdog PCB, and a flexible PCB for measuring force on the tip of attached instrument to spine surgery robot.
- Worked on safety and verification of medical robot and medical robot software complying various standards, including IEC62304, IEC60601-1/2, ISO 13485.
- Project GitHub Link
- Project Documentation Link

R&D Intern

Korea Institute of Science and Technology [06/01/2020 – 31/08/2020]

City: Seoul

Country: South Korea

During this internship, I worked with a start-up company to implement control software and an initial prototype of a medical device called microdebrider, which is used in endoscopic sinus surgeries. Throughout this project, I used:

- C++
- Qt
- CiA402
- Git
- EPOS Linux Library
- Doxygen

- Raspberry Pi
- CAN Protocol
- EasyEDA (for custom PCB design)
- SolidWORKS (for prototype case design)

● Project GitHub Link
● Project Documentation Link

EDUCATION AND TRAINING

Electronics Ph.D.
Mid Sweden University [01/09/2022 – Current]

Address: Sundsvall (Sweden)
Website: https://miun.se/

AI & Robotics Master
University of Science and Technology / Korea Institute of Science and Technology [01/09/2020 – 31/08/2022]

Address: 02792 Seoul (South Korea)
Website: https://ust.ac.kr/eng.do
Final grade: 4.33/4.5
Thesis: Development of Medical Device Control Software Framework

Electrical & Electronics Engineer
Mersin University [01/09/2015 – 24/05/2019]

Address: 33110 Mersin (Turkey)
Final grade: 3.67/4
Thesis: Wi-Fi Controlled Natural Gas Valve System With Android Based Software

LANGUAGE SKILLS

Mother tongue(s): **Kurdish** | **Turkish**

Other language(s):

English	**Korean**
LISTENING C2 **READING** C2 **WRITING** C2	**LISTENING** B1 **READING** B1 **WRITING** A2
SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2	**SPOKEN PRODUCTION** B1 **SPOKEN INTERACTION** B1

DIGITAL SKILLS

AI / Machine Learning / Deep Learning
Python / Tensorflow / PyTorch / ONNX & ONNX Runtime / MATLAB / Julia / Pandas Numpy Scikit-learn Scipy libraries

Embedded System Design
C / C++ / Qt / STM32 / Altium Designer / Proteus / PCB Design

Prototyping Products
SolidWorks / SMD soldering / Arduino / Raspberry Pi

Others
LaTeX / EtherCAT / CiA 402 / Git / ROS/ROS2 / Real-time Linux

CONFERENCES AND SEMINARS

Development of Control Framework for Spine Surgery Robot Using EtherCAT

[The 17th Asian Conference on Computer Aided Surgery / Virtual Conference]

Abstract—As the more sensors and actuators are used in the robotic systems to provide more features, complexity of the system is increasing. When it comes to medical robotics, it becomes harder to ensure safety and determinism in the system. To deal with increasing complexity and ensure precise periodicity and execution timing for a medical robot, in this paper we report development of EtherCAT master as a part of software framework for spine surgery robot. We implemented a multi-axis controller using open-source EtherCAT master running in real-time preemptive Linux. We evaluated the real-time performance of the system in terms of periodicity, jitter and execution time in our first prototype of spine surgery robot.

Link: https://github.com/veysiadn/veysiadn.github.io/raw/master/assets/pdf/ACCAS2021_VeysiADIN_ChunwooKim.pdf

Development of motor control component for medical robot software framework based on EtherCAT

[Seoul, South Korea / Korea Robotics Society, 19/05/2021 – 21/05/2021]

Component based software engineering principles can be applied to the development of a robot software to facilitate the complex development process. This paper reports development of a EtherCAT master as part of a software framework for medical robot. A multi axis motor controller is implemented using an open source EtherCAT master running in preemptive real-time Linux. The real-time performance of the controller is evaluated in terms of periodicity, jitter, and execution time.

Link: https://github.com/veysiadn/veysiadn.github.io/raw/master/assets/pdf/KROS Paper Veysi - Submitted 20210311.pdf

HONOURS AND AWARDS

Valedictorian of Engineering Faculty

Mersin University Engineering Faculty [24/05/2019]

I have ranked first among the faculty of engineering students graduating in 2019.

Scholarship

Vehbi Koc Foundation [01/09/2016]

Encouragement Award

Korea Institute of Science and Technology [18/10/2021]

KIST School organizes Idea Bubling Contents each year, where students implements their ideas related to industry, robotics and AI.

I attented the contest with my project called Portable-Progammable Real-time EtherCAT Master, and I won 3rd place among the 59 student projects.

Link: https://www.youtube.com/watch?v=UaHLfNDjBoc

HOBBIES AND INTERESTS

Hobbies

Basketball, football, hobby electronics, 3D printing, cooking, Sci-Fi movies and books.