Abdulmumin Abdusattorov

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Education

University of Karabuk – BS in Mechatronics Engineering – GPA **3.15**/4.00 — Karabuk, Türkiye | 2020-2024
NTUA – BS in Electrical and Computer Engineering (Erasmus+) – GPA **3.2**/4.00 — Athens, Greece | 2022-2023

Experience

Junior Mechatronics Engineer, ID Partner – Grenoble, France 09/2023 – 04/2024

- Redesigned and developed 0.1 mm air gap rotatable gear mechanics for electromagnetic mechanical switches, achieving a ~50% cost reduction by minimizing material waste, streamlining assembly, and improving manufacturability.
- Created detailed CAD designs using SolidWorks and Fusion360, prototyped models with 3D printers (FDM, SLS) and CNC machines, and tested in both controlled lab environments and field trials.
- Developed a ready-to-use copper conductor calculator with MATLAB simulation and GUI by researching Litz wire losses in the 200 kHz–1 MHz frequency range and analyzing B-H curves.
- Designed the CAM for the water-cooled plate, resulting in a 30% increase in stability, reducing the risk of system failure during high-temperature tests, and enhancing operational efficiency.

3D Printer R&D intern, TÜBİTAK – Karabuk, Türkiye 06/2022 – 09/2022

- Collaborated with PhDs to develop next-gen 3D printers for horizontal printing in molding operations, contributing to structural design using SolidWorks and creating 20+ printable parts for the prototype.
- Performed structural stress and strain analysis using ANSYS to validate conveyor belt systems for load capacities of 10-15 kg, ensuring operational reliability and safety.
- Assisted in designing and implementing control systems for conveyors using Arduino Mega and Raspberry Pi for motor control, while developing mathematical and dynamic models and simulating the systems with Simulink and Simscape.

Mechanical Engineer intern, Elf Elevator – Karabuk, Türkiye 06/2021 – 08/2021

- Created detailed CAD models and 2D engineering drawings for elevator enclosures using SolidWorks, ensuring compliance with GD&T standards for precision and manufacturability.
- Programmed and integrated the elevator's light unit, developing control circuits and logic for automated operation, ensuring reliable functionality and seamless integration with the elevator's control system.

Projects

TEKNOFEST - Team MEMMAR - Chip Design Category 2022, 2023

- Image and signal processing tasks using MATLAB, optimizing data handling and processing efficiency in the Chip Design.
- Assisted MEMMAR in reaching finalist status in the 2023 Teknofest competition through algorithm optimization design.

Founder & Team Captain, Team "FAZO" – MathWorks Minidrone Competition

- Developed autonomous navigation algorithms using MATLAB, enabling reliable path tracking and obstacle avoidance for future applications like drone delivery, commercial drone, logistics.
- Designed real-time data processing algorithms to improve drone adaptability, supporting AV operations emergency response.

Embedded Control System for Flight Simulation - F16

- Designed and implemented a control system in C/C++ for flight simulation, JSBSim to achieve realistic modeling of F-16.
- Enhanced navigation subsystems to support target acquisition and evasive maneuvers, improving the accuracy.
- Implemented navigation and payload subsystems to handle various mission objectives.

Robotic Arm for Warehouse Automation for (Pick-and-Place Operations)

- Implemented motion control algorithms using inverse kinematics and real-time feedback systems to ensure precise and efficient placement of items, reducing errors and increasing operational throughput for KUKA Agilus KR 6.
- Incorporated a vision system to enable the robotic arm to autonomously detect and identify items, improving the system's ability to handle a wide range of packages and materials in dynamic warehouse environments.

Technical Skills

CAD: SolidWorks, Fusion360, AutoCAD, Ultimaker Cura (Advanced design, modeling, rendering).
Analysis: ANSYS, FEMM, MATLAB, Comsol, Simulink, Simscape, Structural.
Electronics: Motor Control, Mathematical Modeling, PCB repairing, Soldering, Proteus, Arduino, Raspberry Pi.
Programming: C, C++, Python, MATLAB (control algorithms, embedded programming).
Manufacturing and Prototyping: 3D printers (SLS, FDM) , CNC, Laser Cutting, Milling Machines.

Soft Skills

Interpersonal: Effective Communication, Collaboration and Teamwork, Cultural Sensitivity, Leadership and Mentorship.
Languages: Uzbek(native), Turkish(~native), English(C1), Russian(B1), German(A1 ongoing).