Ansh Duggal

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TECHNICAL SKILLS

- **Programming:** Python (automation workflows, scripting, data analysis), C++ (object-oriented programming, real-time systems), MATLAB
- **Embedded Systems & Firmware:** STM32, Arduino, Raspberry Pi, firmware development, debugging, hardware–software integration
- **FPGA & Digital Systems:** Verilog (design), ModelSim (simulation), Quartus (analysis); sequential logic, GPIO, PWM, ADC
- **CAD & Mechanical Design:** SolidWorks (3D CAD modelling, assemblies, simulations)
- **Additive Manufacturing & Prototyping:** STL optimisation, G-code generation, 3D printing (Ultimaker), troubleshooting, functional prototype fabrication
- **Sensors & Actuators:** System integration for automation and mechatronics applications
- **System Monitoring & Control:** Software interfaces for real-time monitoring and serial communication protocols
- **Development Tools:** Mbed Studio, Keil Studio, RTL viewers, Microsoft Office Suite (Excel for data analysis, Word for documentation, PowerPoint for presentations)

EDUCATION

University of Leeds, Leeds, UK
BEng (Hons) Mechatronics and Robotics (Sep 2022 – Jul 2025)

- Final-Year Project: *Upper Limb Rehabilitation Exoskeleton for Elbow and Wrist Flexion* (low-cost design with 20% weight reduction via strategic material selection).
- Relevant Modules: Electric Machines, Control Systems, Embedded Systems, Robotics & AI, Engineering Design, Additive Manufacturing.

K.R. Mangalam World School, New Delhi, India
Senior Secondary Education (CBSE – A-Level Equivalent) (Mar 2019 – Jun 2022)

- Core Subjects: Physics, Chemistry, Mathematics.

ACADEMIC PROJECTS

Intelligent Upper Limb Exoskeleton for Rehabilitation (Oct 2024 – May 2025)

- Developed a robotic exoskeleton for stroke recovery, focusing on the elbow and wrist.
- Designed a SolidWorks mechanical model and software interface to automate movement assessment and enable remote therapy.

Remote-Controlled A350 Aircraft Build (Personal Project) (Mar 2020 – Feb 2021)

- Designed and constructed a 7ft wingspan Airbus A350 RC aircraft using Depron foam, carbon fibre, EDFs, servos, and landing gear; integrated control surfaces with an ATmega328P (Arduino Uno) microcontroller.
- Demonstrated advanced skills in prototyping, control systems integration and applied aerodynamics, reducing overall weight by 20% through strategic material selection.

Snake Game on ST Nucleo-L476RG Development Board (Mar 2024 – May 2024)

- Created an interactive Snake game using C++ on the ST Nucleo-L476RG board, integrating peripherals like joystick, LCD, and buzzer.

FPGA-Based Dice Game (Mar 2024 – May 2024)

- Formulated a dice game using Verilog and sequential logic, simulating and testing functionality with ModelSim and modular test benches.

Microcontroller-Controlled Washing Machine Prototype (Mar 2023 – May 2023)

- Built a washing machine control panel using the STM32L476RG microcontroller with features like power control, cycle selection, and serial monitoring.

WORK EXPERIENCE

Brite Industries, New Delhi, India
Engineering Operations Intern (Jul 2025 – Sep 2025)

- Increased machine performance by 25% and reduced downtime by 40% through predictive maintenance strategies.
- Achieved a 15% cost reduction via project budget optimization without compromising quality.
- Boosted production output by 25% through the introduction of advanced automation technologies.
- Aligned cross-departmental goals, improving workflow efficiency by 30% through strategic collaboration.

VOLUNTARY EXPERIENCE

Leeds RAG, Leeds, UK
Secretary (Jun 2023 – Jun 2024)

- Negotiated contracts with catering and equipment vendors for fundraising events, securing 8% cost savings, and boosted sponsorship revenue by 22% through strategic outreach.

Interact Club, Rotary International, New Delhi, India
Member (Apr 2018 – Apr 2019)

- Coordinated blood donation drives, benefiting 500+ individuals, and partnered with local organizations for community outreach.

LEADERSHIP ACHIEVEMENTS

Head Boy, New Delhi, India
K.R. Mangalam World School

- Directed a team of 20 prefects, increasing event participation by 75% and enhancing engagement.
- Spearheaded initiative to create a student-faculty mentorship program, matching 50+ students with faculty mentors resulting in a 20% increase in student engagement in research opportunities.