

# Janvi Ranish

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## EDUCATION

**University of Sheffield: B.Eng Biomedical Engineering: Y2**

**Graduating July 2027**

BME Student Representative Cohort (2024-25)

• Relevant Modules: *Tissue Structure and Function, Engineering with Living Systems I & II, Modelling, Analysis and Control, Programming for Engineers, Biomaterials I & II, Biomechanics & Biofluid Mechanics, Biology & Chemistry of Living Systems*

## PROJECTS

**Women's Health – Highly Commended Innovation Award:** Pitched non-invasive menstrual blood disc for 5-condition biomarker screening and stem cell research; Health Innovation Yorkshire & Humber (Mar 2026)

**Engineers Without Borders UK:** Developing Arduino-based thermal control system for WHO-compliant vaccine cold chain storage, LTspice simulation and real-time sensor logging (ongoing)

**Engineering You're Hired:** Interdisciplinary redesign of total hip arthroplasty prosthetics to significantly reduce revision surgeries and infection rates to <2%, Grade: Distinction (Feb 2026)

**Hackcassible Assistive Technology:** Collaborated on 3D-printed plate organizers and Braille ladles to assist Frank, a visually impaired cook; won the challenge! (Feb 2025)

## RESEARCH & PRESENTATIONS

**British Conference Undergraduate Research:** Independent computational study of HGSOc prognostic gene sets, identifying blind-spots enriched in immune-cold tumours -OR 2.28, p=0.006; presenting at Glasgow (Apr 2026)

**Extended Project Qualification:** Dissertation on human germline editing with a focus on CRISPR applications and translational gaps; Grade: A\* (Aug 2024)

## INDEPENDENT WORK

**Audio Classifier:** Built MATLAB machine learning audio classifier suited for hearing aids achieving ~90% accuracy in environmental sound detection (Dec 2025)

**Ada:** Autonomous bot with ESP32, ultrasonic sensors and ML object detection (Dec 2025)

**TrophoTracker:** Built an inverse optimization system with Python, integrating nutritional database API for precision dietary planning (Sep 2025)

## OTHER EXPERIENCE

**Primary Health Care Corporation: Bioengineering Dept. Doha**

**September 2024**

- Hands-on experience with medical device management across the 23 primary health care centers in Qatar, performing assembly, part replacement and functionality testing using simulators
- Conducted diagnostics and troubleshooting on keratometers, vital signs monitors and phoropters following standard maintenance protocols

**Zenith Gavel Club: President**

**2021-2022**

- Led the Executive Committee, presiding over bi-weekly meetings and overseeing completion of duties
- Founded internal reading club, edited the club's newsletter and organized events

**The Skeptics Society: Founder**

**2021-2022**

- Founded a local science club to encourage scientific temper and evidence-based reasoning
- Built a small community of science enthusiasts and rational thinkers through debates and discussions

## SKILLS

**Technical:** R, MATLAB/Simulink, Python, Fusion 360, KiCad, Arduino (C++)

**Wet lab:** Cell culture, Bioreactor operation, PCR, Aseptic Techniques, Pipetting, Spectrophotometry, Microscopy

**Soft skills:** Problem-solving, Adaptability, Teamwork, Communication, Continual Skill Acquisition

**Certifications:** Introduction to Genomic Technologies, Johns Hopkins University; Competent Communicator & Leader, Toastmasters International

**Honors:** Highly Commended Innovation Award (2026), Hackcassible Winner (2024), Qatar Debate Open Champion (2024), Qatar Charity Interschool Debate Champion (2022)