Yufeng NA

:y.na24@imperial.ac.uk +44-7436624061 Yufeng (Raine) Na Raine-4

Education

Imperial College London *MRes in Medical Robotics and Image-Guided Intervention* *Sept 2024 – Sept 2025*

- **Coursework:** Image Guided Intervention; Medical and Surgical Imaging; Medical Robotics and Instrumentation; Sensing, Perception and Neuroergonomics; Minimally Invasive Surgery

Beihang University *Bachelor in Mechanical Engineering* *Sept 2020 – July 2024*

- GPA: 89.6/100 (Top 3 in major)
- **Coursework:** Calculus I/II (100/98); Probability and Statistics (100); Differential Equations (98); Computational Method (96); Data Management and Artificial Intelligence (96); Principle and Application of Microcomputer (95)

Experience

Mechanical Prototype Engineer *Shanghai, China*
Shanghai Lanzai Information Technology Co., Ltd. *June 2024 – Sept 2024*

- Designed and fabricated a plunger pump, including component layout, key parts selection (motors, springs, check valves), and 3D modeling/printing of base plate, motor support, and the plunger.
- Designed and 3D printed parts for the Simulated Moving Bed (SMB) device (e.g., frit holders, motor holders, cuvettes, filtration columns), and created piping and wiring diagrams.

Projects

Tracking an optical probe in vivo and correlating with ex vivo specimen in upper gastrointestinal cancer surgeries *Oct 2024 - Dec 2024*

- Annotated probe positions in original videos and trained a YOLOv5-based detection model to achieve real-time intraoperative probe detection, enhancing precision in medical interventions.
- Designed and developed a feature-rich GUI using PyQt5, enabling functionalities such as model import, video detection, video trimming, frame-to-time mapping, and saving keyframes and coordinate data for streamlined user operations.

Probabilistic Reasoning for Arrhythmia Detection *Oct 2024 - Nov 2024*

- Designed and implemented a signal filtering pipeline for ECG data, removing noise and enhancing wave detection accuracy.
- Extracted and reduced dimensionality of ECG features using PCA and LDA, optimizing data for Naive Bayes classification.
- Developed a classifier achieving 78.87% mean accuracy, validated through hold-out and k-fold techniques, with detailed performance analysis.

An Android App for Lower Limb Muscle Fatigue Prevention Exoskeleton *Dec 2023 - July 2024*
See on GitHub

- Developed a Kotlin-based app with Bluetooth motor control for exoskeleton operation, featuring an intuitive XML-designed interface.
- Built an online MySQL database to manage user data and leveraged Kotlin coroutines for efficient asynchronous operations, including real-time Bluetooth and API interactions.
- Proposed and implemented an AI-powered parameter recommendation system, delivering personalized treatment experiences.
- Streamlined development with Git for version control and produced bilingual documentation