

# ZORAVAR SINGH KALKAT MD

✉ [contact@zoravar.eu](mailto:contact@zoravar.eu) | 🏠 [zoravar.eu](http://zoravar.eu)

I am a medical doctor with interests that range from software development to engineering and woodworking. My clinical training encompasses diverse specialties, including emergency medicine, traumatology, and bone pathology. I have actively pursued additional training in areas such as fracture management, computer science, and applications of AI in radiology. I also leverage my diverse interests in areas such as programming to aid in my research. I speak English and Punjabi at a native level, along with Swedish and German at an upper-intermediate level.

## EXPERIENCES

---

### Trauma Surgery Intern

2022 – 2026

*Traumatoloģijas Ortopēdijas Slimnīca*

*Rīga, Latvia*

*(Rīga Traumatology and Orthopedics Hospital)*

Voluntary position under the supervision of Dr. Igors Terjajevs (*MD and AO Faculty Representative*)

#### Responsibilities:

- Assisted in the preparation of patients for surgery, including supporting anaesthesiologists during induction.
- Sterilization of the surgical field.
- Suturing surgical sites, and applying sterile wound dressing.
- Supported procedures such as osteosynthesis, and the removal of broken and infected hardware.
- Assisted in free and local flap procedures, and autodermoplasty.

#### Surgical Disciplines:

- Traumatology: FRI revision. Focus on lower extremity trauma (e.g. tibial plateau fractures, distal femur fractures, and minimally invasive ligament reconstruction).
- Septic and flap revisions: Involvement in microsurgical free flaps, local flaps, and revision surgeries for war-related injuries.

#### Key Insights:

- Y4: Began involvement in department research work. Responsible for collecting and compiling patient data using custom parsing code for a research project into fracture related infection metabolomics.
- Y3: Carried out simple procedures under direct surgeon supervision (such as gamma nail), participated in pre-op planning discussions. Developed a stronger understanding of the theoretical basis of varying treatment approaches, and weighing up the advantages and disadvantages.
- Y2: Learning more theory - fracture management course, attending seminars and workshops, using my now fairly refined skill set to prep the patient and operating table to the requirements of the operation, and scrubbing in early to clean the limb and prepare for the start of the surgery. Allowing the surgeon to scrub out earlier and deal with suturing and wound dressing.
- Y1: Navigating the operating room, familiarizing myself with the administrative and surgical process, allowing for some independence (getting to ORs early/proactively helping in the pre-op). Developing my suturing skills, developing my skills as a surgeons assistant.

### Researcher

2021 – Ongoing

*Various Initiatives*

- Early-stage research investigating the impact of endometriosis treatment on sexual function. This work is currently pending ethics approval. My involvement is focused on preparing the ethics application and contributing to the development of Latvian and Russian versions of the Female Sexual Function Index (FSFI) questionnaire. *Ongoing*
- Metabolomic changes in fracture-related infections in collaboration with the Baltic Biomaterials Center of Excellence and the AO Davos Research Institute. I processed a portion of the tissue samples and I used custom code to collate and validate all patient records for the study. *Ongoing*
- Documented the evolution of a subset of the COVID-regulations in Latvia throughout the pandemic as part of a paper about the global COVID-19 response. *Pending publication*
- Mapped the data sources used in medical research from an assigned cohort of medical publications as part of the ECOSIR research collective. *Pending publication*

## Event Medic

2022 – 2026

### *Various Organizations*

- Provide first aid for at least 40 events to both adults and children, at a diverse range of events including concerts, film sets, motocross, horse riding, and sports leagues.
- Identified and secured fractures of the elbow (*children's basketball*), scapula (*motocross*), and knee (*volleyball*).
- Managed heatstroke incidents for the set of Austrian production *Sisi* in Riga Old town as sole medic.
- Sole medic for the sold out Kamasi Washington concert at the Rīga Palladium, Pink Noise Festival of 2025.
- European Volleyball Confederation Riga Youth Championships 2026.
- European Bridge League Championship (Riga) - sole medic for high profile multi-week event with thousands of attendees and dozens of staff.

## Neuropsychiatry Shadow Rotation

2015

### *The Richter Clinic*

*Tulsa, USA*

- Recorded detailed patient histories and assisted in the clinical evaluation of neuro-psychiatric patients.
- Participated in diagnostic discussions within multidisciplinary teams.
- Learned patient communication skills from my incredibly experienced mentor. Experienced the difficulties in delivering bad news, and having conversations regarding traumatic events.

## EDUCATION

---

### Rīga Stradiņš University

2024

#### MD | *Doctor of Medicine*

*Rīga, Latvia*

I completed my medical degree at Riga Stradiņš University, where I built a strong foundation in clinical practice and developed a growing interest in traumatology and orthopaedics, supported by both academic study and clinical experience.

- Adapted quickly to clinical work during the practical year which, included internal medicine, surgery, emergency care, and infectious diseases.
- Developed strong interest in microbiology, anatomy, and point of care ultrasonography.
- Volunteered prior to and during clinical years, with consistent involvement in:
  - **Emergency Department:** Hands-on experience in trauma and polytrauma care; rotations in the emergency trauma unit, reanimation (critical care), and general admissions.
  - **Trauma Department:** Focused on bone infections, limb length restoration, and trauma surgery.
  - **Infectious Disease Hospital:** Strengthened in-patient communication skills and infectious disease management.

*Thesis with Distinction: Midterm and Longterm Outcomes after Hallux Valgus Surgery*

---

### Goethe Institute

2026

#### German | *B2 Exam*

*Rīga, Latvia*

Completed the German B2 language exam with a score of 100% in speaking.

- Reading: 90/100
- Writing: 81/100
- Listening: 90/100
- Speaking: 100/100

### AO Foundation

2023

#### Trauma Course | *Basic Principles of Fracture Management Essentials*

*Online*

Completed AO Trauma online course covering core fracture management principles, including assessment, reduction techniques, and implant use. It complemented my traumatology internship and allowed for in depth pre-operative planning discussions with my mentor based on AO principles.

## **AO Foundation**

2023

### **Trauma Seminar** | *Fractures and Dislocations Around the Knee*

*Rīga, Latvia*

Discussed clinical practice guidelines regarding fractures of the knee, and approach to the knee as an organ. Guest lecturer Dr. Harm Hoekstra (MD, PhD) introduced his revised 3-column approach to tibial plateau fractures, made possible with the advent of AO-approved VA-LCP plating system, allowing expanded access to posterio-lateral corner injuries.

## **Harvard University (HarvardX)**

2026

### **CS50x** | *Introduction to Computer Science*

*Online*

Provided a foundational understanding of computer science from bare-metal C to high-level web services. Consolidated self-taught skills into a strong, cohesive base and built confidence in integrating code into my research.

Final Project: A [secure SSL certificate management system](#) designed with security-by-design throughout. Built on top of my secrets package [memfd-secret](#), which uses the Linux `memfd_secret` syscall to block secret access even at the kernel level.

Hands-on development experience in: C, Python, SQL, Rust, and HTML/CSS/JavaScript.

Also covered best practices including:

- Continuous Integration and Continuous Deployment
- Version Control (via Git)
- Reproducible Hermetic Builds via Nix

## **EIT Health, KTH Royal Institute of Technology, GE Healthcare**

2020

### **HELLOAIRIS** | *Artificial Intelligence Online Training*

*Online*

Completed AI training program by focused on applying AI in medical imaging; highlighting the strengths and limitations underlying the technology. The course provided hands-on experience with AI classifiers, regression analysis, over-fitting risks, and real-world radiology applications such as image classification and enhancement.

## **World Health Organization – Global Health Training Center**

2024

### **ICH GCP** | *Good Clinical Practice E6(R2)*

*Online*

Course covering the ethical principles, regulatory standards, and investigator responsibilities in clinical research. Focused on participant safety, and study data integrity which has informed how I approach data processing in my research work.