

# Marek Sokol

Github: [github.com/sokolmarek](https://github.com/sokolmarek)

Linkedin: [linkedin.com/in/sokolmarek](https://www.linkedin.com/in/sokolmarek)

ORCID: [0000-0001-5795-7581](https://orcid.org/0000-0001-5795-7581)

Email: [marek.sokol@cvut.cz](mailto:marek.sokol@cvut.cz)

Web: [www.mareksokol.cz](http://www.mareksokol.cz)

## EDUCATION

---

- **Faculty of Biomedical Engineering, CTU** Kladno, Czech Republic  
*Doctorate Degree - Biomedical Engineering (In Progress)* 2023 -
- **Faculty of Biomedical Engineering, CTU** Kladno, Czech Republic  
*Master's Degree - Biomedical Engineering* 2021 - 2023
- **Faculty of Biomedical Engineering, CTU** Kladno, Czech Republic  
*Bachelor's Degree - Biomedical Technology* 2018 - 2021

## SKILLS SUMMARY

---

- **Programming:** Python, R, C#, MATLAB, Julia, PHP, JavaScript, SQL
- **Software:** Autodesk, Adobe CC, MS Office, SolidWorks, LabVIEW, COMSOL, Müse
- **Other:** Machine Learning, Statistical Modeling, Digital Signal and Image Processing
- **Languages:** English (B2/C1), German (A2)

## EXPERIENCE

---

- **Health Technology for Space Applications Research Group (HETESPA)** Presential/Remote  
*Executive Assistant, Research Scientist and Software Developer* 2022 - Present
  - **Data Science:**
  - **HW and SW development:**
  - **Machine Learning:**
- **Laboratory of Biomechanics and Assistive Technologies (BAT)** Presential/Remote  
*Research scientist and AI Engineer* 2020 - Present
  - **Digital signal and image processing:**
  - **Software development:**
  - **Machine Learning:**
  - **Statistical modeling:**
- **National Institute of Mental Health (NIMH)** Presential/Remote  
*Software Engineer in Centre for Virtual Reality in Mental Health and Neuroscience* 2021 - Present
  - **Data analysis:** analysis of biological data in the context of neurophysiological influences.
  - **Software development:** development of software for data collection and analysis.
- **University of Defence, Faculty of Military Technology** Presential/Remote  
*Software Engineer in Department of Military Robotics* January 2022 - December 2022
  - **UGV Prototyping:** development of an autonomous robotic system for UGV support
- **Military University Hospital Prague** Presential  
*Biomedical technician (Internship)* June 2020
  - **Work with medical equipment:** familiarisation and work with medical technology within different departments.
  - **Assistance with daily tasks:** assisting with tasks such as installation, maintenance, repair or calibration of medical equipment or components.
- **MediClinic a.s.** Presential/Remote  
*Full-stack developer* 2018 - 2019
  - **Web application development:** creation of an analytical web application.
  - **Server administration:** mail server, Microsoft server/IIS administration and LDAP configuration.
  - **Intranet development:** creation of custom template and extensions for Joomla content management system.
  - **Creation of database procedures:** design and creation of database procedures for Microsoft Power BI.
  - **SSO implementation:** creation and implementation of single sign-on for corporate domain accounts.
- **Freelance** Remote  
*Freelance Full-stack Developer* 2014-2017
  - **Web application development:** Frontend/Backend
  - **UI/UX Design:**

## COURSES & CERTIFICATES

---

- **Medical Neuroscience** – Duke University (Coursera, May 2024): Neuroanatomy, Neural Signaling, Sensory Systems, Movement and Motor Control, Complex Brain Functions, etc.
- **Advanced Data Analytics** – Google Coursera (Coursera, Mar 2024): Statistical analysis, Python, Regression models, Machine learning, etc.
- **Computational Neuroscience** – University of Washington (Coursera, Feb 2024): Neurobiology, Neural encoding and decoding, Information theory, Neural coding, Computing in Carbon, Computing with networks, Networks neural plasticity, Supervision and Rewards
- **Machine Learning Specialization** – Stanford University & DeepLearning.ai (Coursera, Feb 2024): Supervised Machine Learning: Regression and Classification, Advanced Learning Algorithms, Unsupervised Learning, Recommenders, Reinforcement Learning
- **Executive Space Course - Medicines in Space - Oxford, UK (Nov 2023)**: Lectures: Space Environment, Humans in Space, Medical Care During Missions, Medication Supplies, Metabolism in Space, Aging in Space, Genetics, Omics for Precision Medical Care, AR & VR in Health Applications, participation in a hands-on Payload Design Workshop, etc.

## ACHIEVEMENTS

---

- **Award for the best contribution in the section Assistive Technologies, Applications of Artificial Intelligence and its Use (Feedback System for Exposure Therapy Control in Virtual Reality)**: Conference Modern Procedures in Distance Care and Rehabilitation Medicine - Medical House, Czech Medical Society of Jan Evangelista Purkyně in Prague (Sep 2023)

## SCIENTIFIC RESEARCH PROJECTS

---

- **Exposure to stressful situations in a virtual city environment (TA CR ÉTA TL03000223)**: Creation of a therapeutic software VREtcity situated in a complex virtual city environment for the purpose of exposure therapy, focused on specific phobias related to situations typical for the city environment. Provider: Technology Agency of the Czech Republic (2020-2023)
- **Design of wearable sensor systems in assistive technologies for members of the IRS with regard to cost optimization (Internal student grant competition)**: Design, development and application of new wearable systems for the determination of evaluation parameters of complex biomedical and physical data. (2022)
- **An instrument to examine the influence of personality characteristics and external factors on team dynamics during a long-term stay in an ICE environment (TA CR ETA TL05000228)**: Provider: Technology Agency of the Czech Republic (2021 - 2023)
- **Smart Mobility for children with disabilities – therapy, lifestyle and leisure (TA CR TREND FW04020071)**: Design and integration of autonomous electric motors and sensory system in strollers for handicapped children. Provider: Technology Agency of the Czech Republic (2022-2024)
- **Application of body surface potential mapping (BSPM) in patients with re-synchronization therapy (Internal student grant competition of CTU in Prague)**: Evaluation of ECG manifestations of the ventricular depolarization process using BSPM and finding depolarization parameters adequate to optimize re-synchronization therapy in patients with heart failure. (2022-2024)
- **Monitoring the position of IRS members even during an intervention in large buildings using elements of artificial intelligence**: Provider: Ministry of Interior (2022 - 2025)
- **Development of the platform for maintaining and monitoring the physical conditions in isolated, confined and extreme environments (TA CR DELTA TM04000062)**: Technology Agency of the Czech Republic (2023-2025)
- **Methodology of fast non-contact and non-destructive detection of gunshot residue (OPSEC VK01010037)**: Provider: Ministry of Interior (2023 - 2025)
- **Smart system for wearable protective equipment enabling telemonitoring and planning of police and military interventions (OPSEC VK01020078)**: Provider: Ministry of Interior (2023 - 2026)
- **Progressive ballistic armor for armed forces (TA CR TREND MIHRIL II. FW06010271)**: Provider: Technology Agency of the Czech Republic (2023 - 2025)
- **Innovative system of virtual reality and simulated model cases of security character facilitating training and treatment of police officers in risky situations (OPSEC VK01020196 )**: Provider: Ministry of Interior (2023 - 2025)
- **Portable modular MoCap system for recording and evaluating the condition of members of the armed forces and first responders (TA CR DELTA TM05000017)**: Provider: Technology Agency of the Czech Republic (2024 - 2026)