# Marek Sokol Github: github.com/sokolmarek

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## Education

Email: marek.sokol@cvut.cz Web: www.mareksokol.cz

2014-2017

• Faculty of Biomedical Engineering, CTU Doctorate Degree - Biomedical Engineering (In Progress)		Kladno, Czech Republic 2023 -
• Faculty of Biomedical Engineering, CTU • Master's Degree - Biomedical Engineering		Kladno, Czech Republic 2021 - 2023
• Faculty of Biomedical Engineering, CTU Bachelor's Degree - Biomedical Technology		Kladno, Czech Republic 2018 - 2021
Skills Summary		
<ul> <li>Programming:</li> <li>Software:</li> <li>Other:</li> <li>Languages:</li> </ul>	Python, R, C#, MATLAB, Julia, PHP, JavaScript, SQL Autodesk, Adobe CC, MS Office, SolidWorks, LabVIEW, COMSOL, Müs Machine Learning, Statistical Modeling, Digital Signal and Image Process English (B2/C1), German (A2)	se sing
Experience		
<ul> <li>Health Techno Research Scientis</li> <li>Data Scientis</li> <li>HW and S</li> <li>Machine Le</li> </ul>	logy for Space Applications Research Group (HETESPA) st and Software Developer ce: W development: earning:	Presential/Remote 2022 - Present
<ul> <li>Laboratory of Research scientis</li> <li>Digital sign</li> <li>Software de</li> <li>Machine Le</li> <li>Statistical point</li> </ul>	Biomechanics and Assistive Technologies (BAT) at and AI Engineer al and image processing: evelopment: earning: modeling:	Presential/Remote 2020 - Present
• National Instit • Software Enginee • Data analy • Software de	<b>ute of Mental Health (NIMH)</b> er in Centre for Virtual Reality in Mental Health and Neuroscience sis: analysis of biological data in the context of neurophysiological influen evelopment: development of software for data collection and analysis.	Presential/Remote 2021 - 2024 ces.
• University of I Software Enginee • UGV Prote	Defence, Faculty of Military Technology er in Department of Military Robotics otyping: development of an autonomous robotic system for UGV support	Presential/Remote January 2022 - December 2022
• Military Univer Biomedical techn • Work with • Assistance equipment of	ersity Hospital Prague ician (Internship) medical equipment: familiarisation and work with medical technology with daily tasks: assisting with tasks such as installation, maintenance, components.	Presential June 2020 within different departments. repair or calibration of medical
MediClinic a.s.       Presential/Remote 2018 - 2019         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

 $\circ$  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, 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

- Member of the Scientific Antarctic Expedition 2025: Three months at the Czech Scientific Station (J. G. Mendel Station, James Ross Island, Antarctica), conducting research on the impact of extreme environments on the human body and biomedical technology (Jan Mar 2025)
- Honorable Mention for the paper "Multimodal Emotion Recognition through a Hybrid CNN-GCN Model Integrating Neuroimaging and Physiological Data": 6th International Conference on Biomedical and Health Informatics - National Cheng Kung University (NCKU), Tainan, Taiwan (Oct 2024)
- 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 (GRANTS)

- 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)