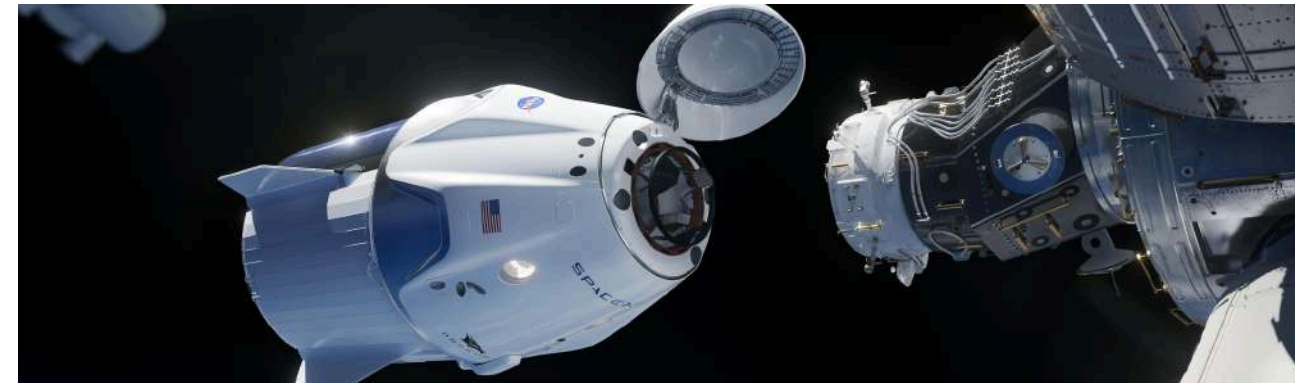


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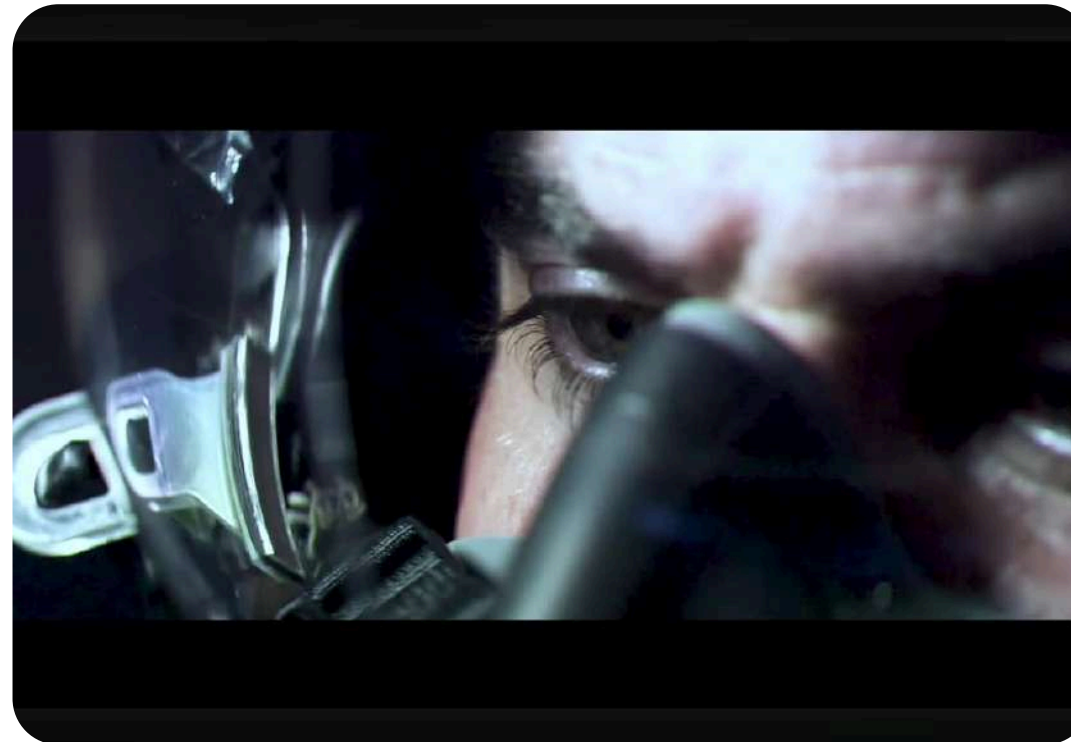
S astronautem Alešem Svobodou: Z kokpitu stíhačky až ke hvězdám.



Obsah



Bojová letada



F-35



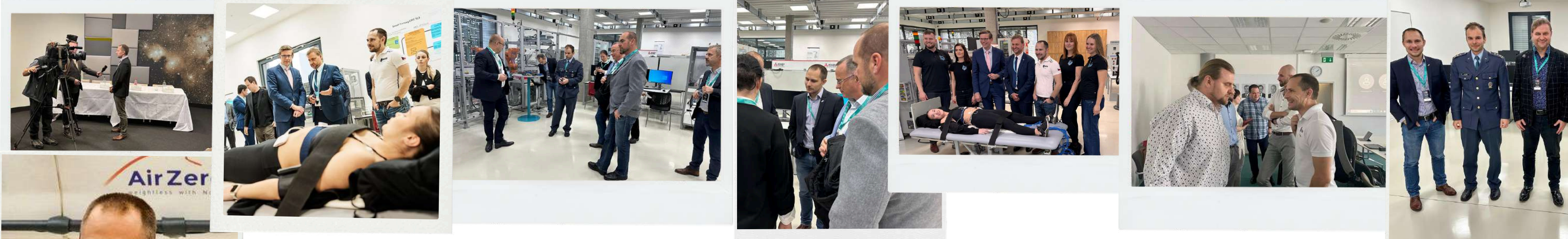
Mise do vesmíru



ISS laboratoř



Elon Musk a Space X



Astronaut Aleš Svoboda na VŠB-TUO

Cardiorespiratory Monitoring: From Laboratory to Space

Radek Martinek^{a,*}, Martina Ladrova^a, Katerina Barnova^a, Radana Vilimkova Kahankova^a, Rene Jaros^a, Dominik Vilimek^a, Jindrich Brablik^a, Jakub Kolarik^a, Ales Svoboda^a, Lukas Danys^a, Jan Platos^a, Martin Pumera^d

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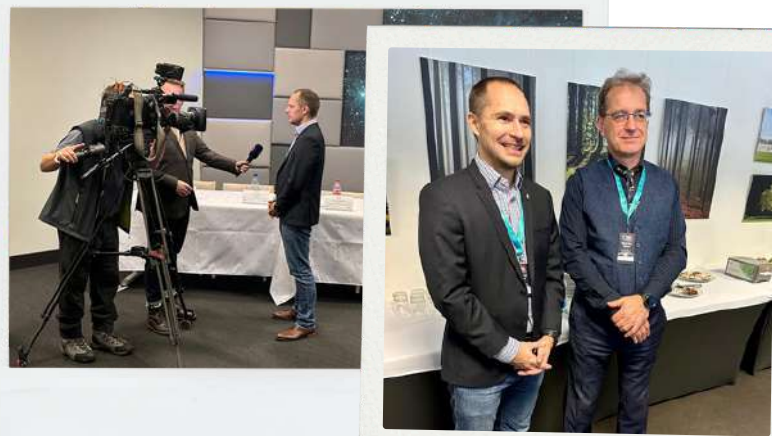
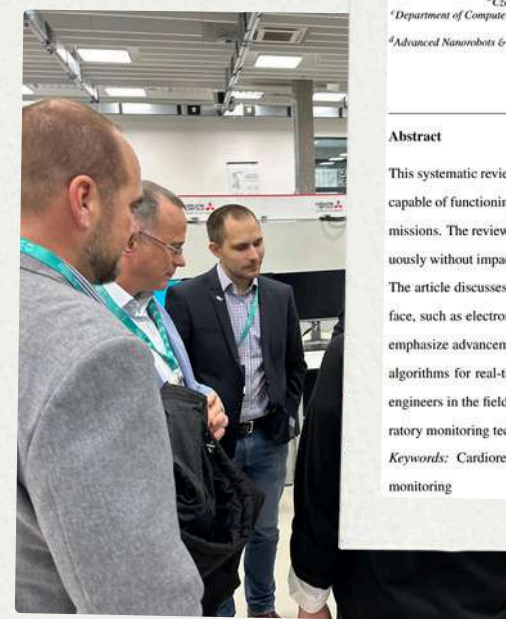
^cDepartment of Computer Science, Faculty of Electrical Engineering and Computer Science, VSB-Technical University of Ostrava, 17. listopadu 217215, Ostrava, 708 00, Czechia

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Abstract

This systematic review focuses on the latest developments and challenges in cardiorespiratory monitoring technology, capable of functioning in the unique conditions of space to ensure the health and safety of astronauts during prolonged missions. The review highlights development of unobtrusive wearable devices that can monitor vital functions continuously without impacting astronaut performance based on different principles, such as electrical or mechano-acoustic. The article discusses the technical requirements, design considerations, and the operational challenges these devices face, such as electromagnetic interference, physical durability, and the need for non-intrusiveness. Future directions emphasize advancements in textile-integrated sensors and nano-engineered materials or integrating machine learning algorithms for real-time analysis of the acquired data. This review serves as a critical resource for researchers and engineers in the field of aerospace medicine and bioengineering, providing insights into the evolution of cardiorespiratory monitoring techniques from Earth to the extreme environment of space.

Keywords: Cardiorespiratory signals, Wearable sensors, Human spaceflight, Microgravity, Astronaut health monitoring



Studium

2005

Základní výcvik AČR
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Magisterský titul
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Absolvoval mezinárodní školu a školu pro důstojníky
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2019 – 2021

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Bojová letadla a letecká služba



F-35 – Nejvyspělejší víceúčelový stroj současnosti



Mise do vesmíru, experimenty a význam pro ČR

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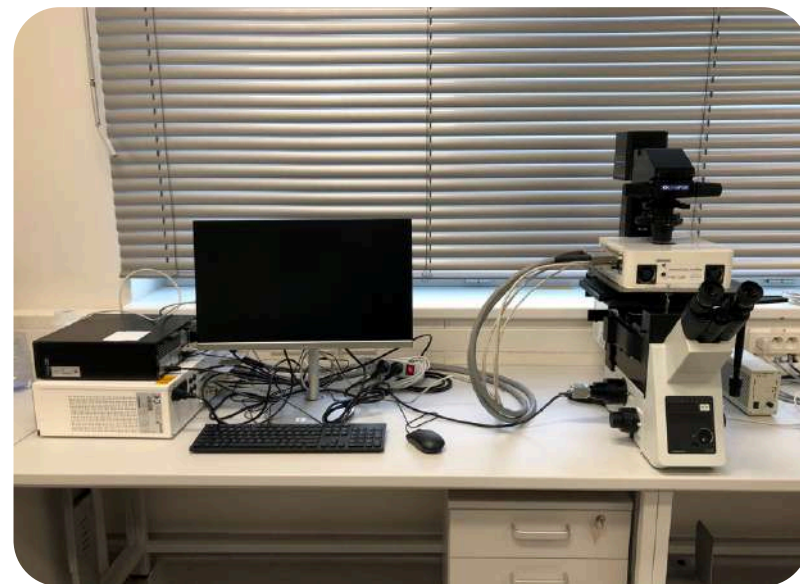
Výzvy, budoucnost a osobní pohled



Elon Musk & SpaceX: Když inovace mění pravidla hry



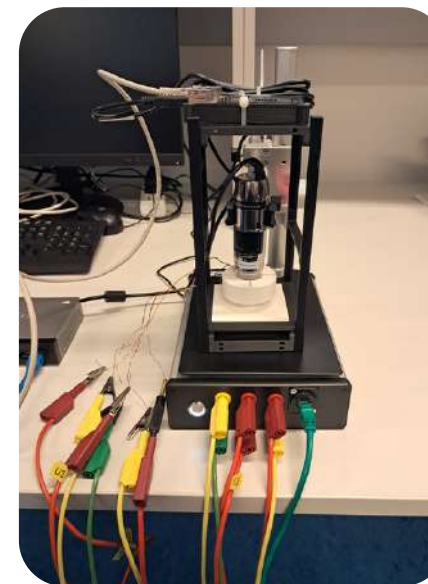
Vesmírné projekty VŠB-TUO



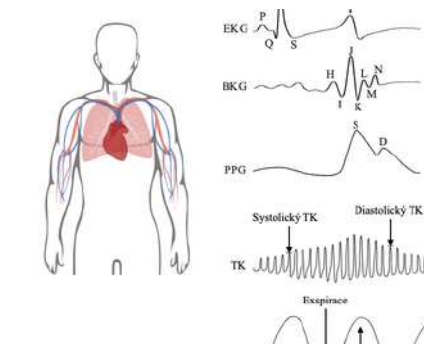
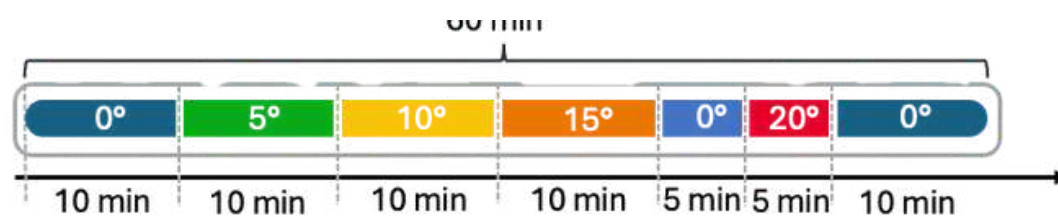
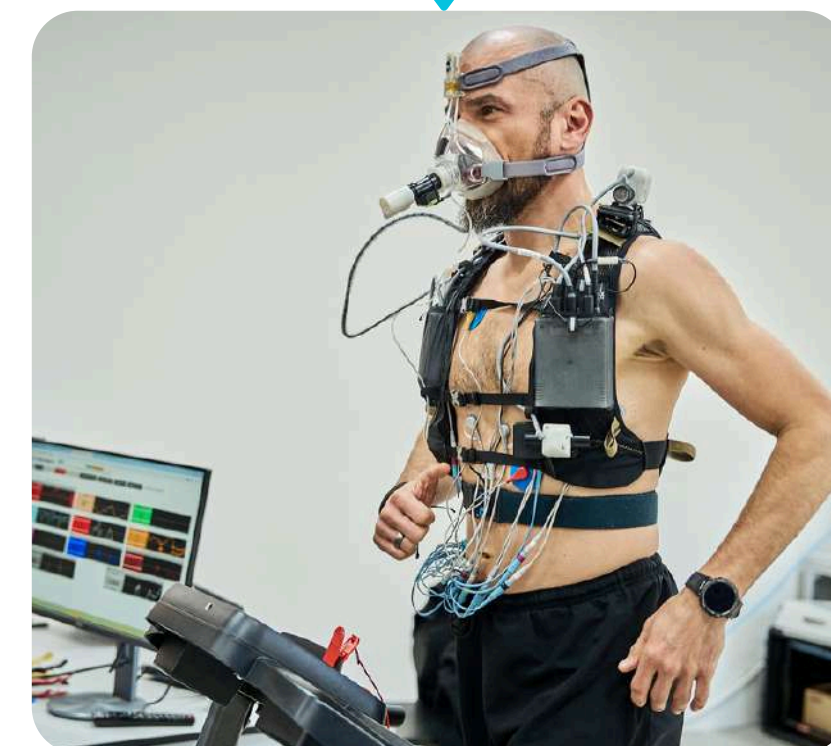
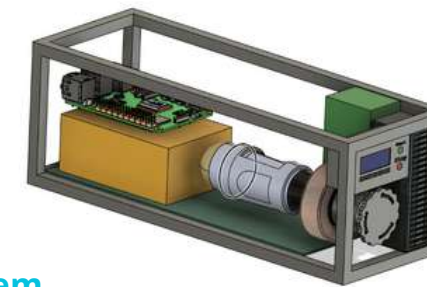
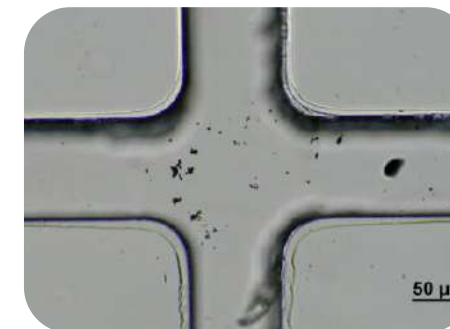
Lab-Scale System



For Microrobots
at the
International
Space Station
(ISS)



Satellite-Scale Compact System



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