

## Widening Country Success Story

“The key to a successful application lies in crafting an innovative and realistic research idea and pairing it with a host that perfectly aligns with your vision.”

**Name of the fellow:** Sujit Deshmukh  
**Country of the host:** Czech Republic  
**Project Acronym:** Microsupercapacitor  
**Project start and end date:** 1.04.2022-31.03.2024  
**Type of MSCA, Horizon 2020:** Individual Fellowship

### What is your project about and why is the topic important for science advancement?

Developing stretchable/ flexible energy storage devices that could be assembled or attached to the human body remains challenging. In my project, we prepared different types of functionalised graphene on a flexible polymer sheet using a single step lasing method. Using these flexible functionalised graphene we developed high-energy-density microsupercapacitors/ batteries integrated with a bio-monitoring device to monitor a human body's radial artery pulses or human body temperature.

### Why is your project important for society?

Conventional substrates like Si, SiO<sub>2</sub>, and techniques such as CVD, PVD, and ALD for growing 2D materials and thin metal oxides are expensive and involve critical raw materials, raising concerns about supply risk and economic impact. This project demonstrated a cost-effective, sustainable alternative to conventional silicon-based electrodes using a simple lasing method.

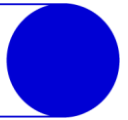
### What communication and public engagement measures have you foreseen?



The results were presented at the 2023 Fall Meeting of the European Materials Research Society (E-MRS) at the University of Technology in Warsaw, Poland. Additionally, I delivered a talk via video conference from my host institution (Central European Institute of Technology, Brno - CEITEC VUT) on how to write an MSCA proposal.

### Why did you choose a widening country as a host?

I chose the Czech Republic because of the host's expertise, particularly under Prof. Martin Pumera, a world-renowned scientist with a multidisciplinary team. CEITEC VUT offers state-of-the-art nanofabrication and characterisation facilities, and I aim to enhance my future career prospects within the EU and globally through the host's extensive network and resources.



## How did you find your host organisation?

I explored research group websites to identify facilities relevant to my field. This led me to potential laboratories and supervisors. I contacted them directly via email and arranged online meeting afterwards.

innovative trainings and career developments.

The MSCA Individual Fellowships (IF) provide opportunities to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Europe and beyond.

## What kind of support did you get?

During the initial phase, I received support from both the prospective host supervisor and the project manager at the host institution. I also attended several seminars organised by the Horizon 2020 network. Additionally, the [handbook](#) available on the [MSCA-NET website](#) was a valuable resource during the application writing process.



The MSCA-NET project is the MSCA NCP project to facilitate the transnational cooperation to achieve a consistent and harmonised level of NCP support. The scientific community can also profit from our project to support their MSCA application.



## What tips can you give other researchers who would like to apply for MSCA?

First, familiarise yourself with the project proposal template and pay attention to the minute details of evaluation criteria. The key to a successful application lies in crafting an innovative and realistic research idea and pairing it with a host that perfectly aligns with your vision.

More information on the project:



The Marie Skłodowska-Curie Actions (MSCA) support researchers at all stage of their career across all disciplines. The MSCA also support cooperation between industry and academia and provide