# A Cost-Effective Photonics-based Device for Early Prediction, Monitoring and Management of Diabetic Foot Ulcers

## Résultats

Informations projet

**PHOOTONICS**

N° de convention de subvention: 871908

Site Web du projet

**DOI**
10.3030/871908

Projet clôturé

**Date de signature de la CE**
14 Octobre 2019

**Date de début**
1 Novembre 2019

**Date de fin**
30 Juin 2024

**Financé au titre de**
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

**Coût total**
€ 4 603 352,70

**Contribution de l'UE**
€ 3 686 906,25

**Coordonné par**
UAB METIS BALTIC
Lituanie

CORDIS fournit des liens vers les livrables publics et les publications des projets HORIZON.

Les liens vers les livrables et les publications des projets du 7e PC, ainsi que les liens vers certains types de résultats spécifiques tels que les jeux de données et les logiciels, sont récupérés dynamiquement sur OpenAIRE.

# Livrables

## Documents, rapports (11)

Communication Kit (Final version)

A communication kit about the project (as a minimum a narrative text, photographs, slides possibly complemented by a video and any other suitable communication material, accompanied with copyright licences for the European Commission and for Photonics21) will be prepared. The communication kit will target audiences beyond the project's own community, including the broader public and potential end-users, and focus on expected outcomes and related socio-economic benefits for the EU. The final version of the communication kit will be updated at project end to reflect project progress achieved.

Public final activity report

This is a publishable final activity report, covering main aspects of the work, objectives, results and conclusions, including the publishable results of the final plan for using and disseminating the knowledge

First Interim Dissemination and Communication Report

This deliverable will report all the dissemination and communication activities that took place during the first year of the project, and will include also the material that was used (posters, brochures, papers, videos, etc.).

Communication Kit (2nd version)

A communication kit about the project as a minimum a narrative text photographs slides possibly complemented by a video and any other suitable communication material accompanied with copyright licences for the European Commission and for Photonics21 will be prepared The communication kit will target audiences beyond the projects own community including the broader public and potential endusers and focus on expected outcomes and related socioeconomic benefits for the EU The 2nd version of the communication kit will be updated at the project midterm to reflect project progress achieved

Communication Kit (1st version)

A communication kit about the project as a minimum a narrative text photographs slides possibly complemented by a video and any other suitable communication material accompanied with copyright licences for the European Commission and for Photonics21 will be prepared The communication kit will target audiences beyond the projects own community including the broader public and potential endusers and focus on expected outcomes and related socioeconomic benefits for the EU The 1st version will be delivered by M3

PHOOTONICS Website

The Project Website will present information about the project objectives partners etc and will be updated regularly with further content

Second Interim Dissemination and Communication Report

This deliverable will report all the dissemination and communication activities that took place during the second year of the project and will include also the material that was used posters brochures papers videos etc

Survey of existing medical equipment of diabetic foot

This deliverable includes a detailed analysis on existing medical equipment of a diabetic foot.

Appointment of the external Ethics Advisor

Confirmation of the appointment of the external Ethics Advisor. The external independent Ethics Advisor will be appointed by M1 to oversee the ethical concerns involved in the research.

Final Dissemination and Communication Report

This deliverable will report all the dissemination and communication activities that took place during the lifetime of the project, and will include also the material that was used (posters, brochures, papers, videos, etc.).

Meta-analysis results

This deliverable reports on the results of Task 2.2, including medical indices that PHOOTONICS target and the respective value ranges.

## Open Research Data Pilot (1)

Data Management Plan (DMP)

As part of making research data findable, accessible, interoperable and re-usable (FAIR), a Data Management Plan (DMP) will be created and shall include information on: - the handling of research data during and after the end of the project - what data will be collected, processed and/or generated - which methodology and standards will be applied - whether data will be shared/made open access and - how data will be curated and preserved (including after the end of the project). The initial DMP is expected at month 6 at the latest. The DMP is to be updated over the course of the project whenever significant changes arise, such as (but not limited to): - new data - changes in consortium policies (e.g. new innovation potential, decision to file for a patent) - changes in consortium composition and external factors (e.g. new consortium members

joining or old members leaving). The DMP will be updated as a minimum in time with the periodic evaluation/assessment of the project.

## Publications

### Articles approuvés par les pairs (7)

Near-infrared fluorescence angiography with indocyanine green for perfusion assessment of DIEP and msTRAM flaps: A Dutch multicenter randomized controlled trial

**Auteurs:** F.P. Tange, P.S. Verduijn, B.G. Sibinga Mulder, L. van Capelle, S. Koning, C. Driessen, M.A.M. Mureau, A.L. Vahrmeijer, J.R. van der Vorst
**Publié dans:** Contemporary Clinical Trials Communications, Numéro 33, 2024, Page(s) 101128, ISSN 2451-8654
**Éditeur:** Elsevier
**DOI:** 10.1016/j.conctc.2023.101128

The impact of diabetes mellitus on foot perfusion measured by ICG NIR fluorescence imaging

**Auteurs:** Stefan Koning, Just van Kersen, Floris P. Tange, Mo W. Kruiswijk, Roderick C. Peul, Jan van Schaik, Abbey Schepers, Alexander L. Vahrmeijer, Jaap F. Hamming, Pim van den Hoven, Joost R. van der Vorst
**Publié dans:** Diabetes Research and Clinical Practice, Numéro 214, 2024, Page(s) 111772, ISSN 0168-8227
**Éditeur:** Elsevier BV
**DOI:** 10.1016/j.diabres.2024.111772

Perfusion Patterns in Patients with Chronic Limb-Threatening Ischemia versus Control Patients Using Near-Infrared Fluorescence Imaging with Indocyanine Green

**Auteurs:** Pim Van Den Hoven, Lauren N. Goncalves, Paulus H. A. Quax, Catharina S. P. Van Rijswijk, Jan Van Schaik, Abbey Schepers, Alexander L. Vahrmeijer, Jaap F. Hamming, Joost R. Van Der Vorst
**Publié dans:** Biomedicines, Numéro 9, 2024, Page(s) 1417, ISSN 2227-9059
**Éditeur:** MDPI
**DOI:** 10.3390/biomedicines9101417

Graph-Based Semi-Supervised Learning With Tensor Embeddings for Hyperspectral Data Classification

**Auteurs:** Ioannis Georgoulas, Eftychios Protopapadakis, Konstantinos Makantasis, Dylan Seychell, Anastasios Doulamis, Nikolaos Doulamis
**Publié dans:** IEEE Access, 2023, ISSN 2169-3536

**Éditeur:** Institute of Electrical and Electronics Engineers Inc.
**DOI:** 10.1109/access.2023.3328388

A Non-Invasive Photonics-Based Device for Monitoring of Diabetic Foot Ulcers: Architectural/Sensorial Components & Technical Specifications

**Auteurs:** Doulamis, A.; Doulamis, N.; Angeli, A.; Lazaris, A.; Luthman, S.; Jayapala, M.; Silbernagel, G.; Napp, A.; Lazarou, I.; Karalis, A.; Hoveling, R.; Terzopoulos, P.; Yamas, A.; Georgiadis, P.; Maulini, R.; Muller, A.
**Publié dans:** Inventions, , Published by MDPI, 2021, ISSN 2411-5134
**Éditeur:** MDPI
**DOI:** 10.3390/inventions6020027

Quantification of indocyanine green near-infrared fluorescence bowel perfusion assessment in colorectal surgery

**Auteurs:** Robin A. Faber, Floris P. Tange, Hidde A. Galema, Thomas C. Zwaan, Fabian A. Holman, Koen C. M. J. Peeters, Pieter J. Tanis, Cornelis Verhoef, Jacobus Burggraaf, J. Sven D. Mieog, Merlijn Hutteman, Stijn Keereweer, Alexander L. Vahrmeijer, Joost R. van der Vorst, Denise E. Hilling
**Publié dans:** Surgical Endoscopy, Numéro 37, 2023, Page(s) 6824-6833, ISSN 0930-2794
**Éditeur:** Springer Verlag
**DOI:** 10.1007/s00464-023-10140-8

A review of non-invasive sensors and artificial intelligence models for diabetic foot monitoring

**Auteurs:** Maria Kaselimi; Eftychios Protopapadakis; Anastasios Doulamis; Nikolaos Doulamis
**Publié dans:** Frontiers in Physiology, Numéro 1, 2022, ISSN 1664-042X
**Éditeur:** Frontiers Research Foundation
**DOI:** 10.3389/fphys.2022.924546

## Actes de conférence (5)

Transfer Learning for COVID-19 Pneumonia Detection and Classification in Chest X-ray Images

**Auteurs:** Iason Katsamenis, Eftychios Protopapadakis, Athanasios Voulodimos, Anastasios Doulamis, Nikolaos Doulamis
**Publié dans:** PCI '20: Proceedings of the 24th Pan-Hellenic Conference on Informatics, 2021
**Éditeur:** ACM
**DOI:** 10.1145/3437120.3437300

Tensor-based embedding for graph-based semi-supervised approaches

**Auteurs:** Ioannis Georgoulas, Eftychios Protopapadakis, Konstantinos Makantasis, Anastasios Doulamis
**Publié dans:** PETRA '23: Proceedings of the 16th International Conference on PErvasive Technologies Related to Assistive Environments, 2023
**Éditeur:** ACM
**DOI:** 10.1145/3594806.3596550

Unsupervised diabetic foot monitoring techniques
**Auteurs:** Ioannis N. Tzortzis, Agapi Davradou, Eftychios Protopapadakis, Maria Kaselimi, Nikolaos Doulamis, Aikaterini Angeli, Andreas Lazaris
**Publié dans:** 2022
**Éditeur:** ACM
**DOI:** 10.1145/3529190.3534723

A cost -effective photonics-based device for early prediction, monitoring and management of diabetic foot ulcers
**Auteurs:** Anastasios Doulamis; Nikolaos Doulamis; Aikaterini Angeli
**Publié dans:** Proceedings of the 13th ACM International Conference on PErvasive Technologies Related to Assistive Environments, Numéro 1, 2020, Page(s) 1-8, ISBN 9781450377737
**Éditeur:** ACM
**DOI:** 10.1145/3389189.3397994

Diabetic foot ulcers monitoring by employing super resolution and noise reduction deep learning techniques
**Auteurs:** Agapi Davradou, Eftychios Protopapadakis, Maria Kaselimi, Anastasios Doulamis, Nikolaos Doulamis
**Publié dans:** 2022
**Éditeur:** ACM
**DOI:** 10.1145/3529190.3529214

**Dernière mise à jour:** 19 Mars 2025

**Permalink:** https://cordis.europa.eu/project/id/871908/results/fr