Joint Communication and Sensing in 6G Networks

Fact Sheet

Project Information

6thSense
Grant agreement ID: 101119652

Funded under
Marie Skłodowska-Curie Actions (MSCA)

DOI
10.3030/101119652

Total cost
€ 0,00

EU contribution
€ 2 653 495,20

Start date
1 February 2024

End date
31 January 2028

Coordinated by
KATHOLIEKE UNIVERSITEIT LEUVEN
Belgium

Objective

Having lost a significant share of the market to big players from the US and Asia, Europe is no longer at the forefront of the telecommunication industry. However, new services focusing on remote health monitoring, industry 4.0 and autonomous vehicles have created a unique opportunity for Europe to regain a leading position in 6G. Unlike traditional mobile broadband that mainly connect people, these emerging services not only exchange data but also critically rely on accurate information from their surroundings (i.e. sensing). Consequently, joint communication and sensing (JCAS) is a key feature of 6G networks, where devices will embed wireless sensing capabilities (e.g. localisation, activity recognition). JCAS
faces major challenges since it demands fundamental changes to current communication systems. 6thSense follows a holistic approach to address these challenges by: (WP1) Going beyond traditional sub-6GHz systems and enabling sensing in new B5G/6G communication bands, i.e. millimetre-wave and visible light; (WP2) Addressing distributed sensing and networking challenges through architecture and protocol design; (WP3) Handling the analytical complexity of JCAS by combining the strengths of classical signal processing and optimisation models with advanced machine learning techniques; (WP4) Transferring these research contributions to industry-relevant applications in healthcare, manufacturing, and automotive sectors. 6thSense is an intersectoral and interdisciplinary cluster of excellence formed by electrical engineers and computer scientists that has pooled leading members of large EU initiatives (5G PPP), industry leaders (e.g. Nokia, Ford, Bosch) and academic institutions (e.g. KUL, TUDelft, Princeton, UCLA). Benefitting from this consortium, a comprehensive soft-skill training (WP5) and a tailored dissemination and exploitation strategy (WP6), the 10 PhD fellows will become highly employable in various industries, academia, or public government bodies.

Fields of science

- engineering and technology > mechanical engineering > vehicle engineering > automotive engineering > autonomous vehicles
- engineering and technology > electrical engineering, electronic engineering, information engineering > electronic engineering > signal processing
- natural sciences > computer and information sciences > artificial intelligence > machine learning

Keywords

- Joint communication and sensing
- Radar systems
- 6G communication networks

Programme(s)

HORIZON.1.2 - Marie Skłodowska-Curie Actions (MSCA)  
MAIN PROGRAMME

Topic(s)
Call for proposal

HORIZON-MSCA-2022-DN-01

See other projects for this call

Funding Scheme

HORIZON-TMA-MSCA-DN - HORIZON TMA MSCA Doctoral Networks

Coordinator

KATHOLIEKE UNIVERSITEIT LEUVEN

Net EU contribution

€ 525 240,00

Address

Oude markt 13
3000 Leuven
Belgium

Region

Vlaams Gewest > Prov. Vlaams-Brabant > Arr. Leuven

Links

Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Other funding

€ 0,00

Participants (6)

TECHNISCHE UNIVERSITAT DARMSTADT

Germany
Net EU contribution
€ 521 078.40

Address
Karolinenplatz 5
64289 Darmstadt

Region
Hessen > Darmstadt > Darmstadt, Kreisfreie Stadt

Links
Contact the organisation
Website
Participation in EU R&I programmes
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Other funding
€ 0.00

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TECHNISCHE UNIVERSITEIT DELFT

Netherlands
Net EU contribution
€ 548 740.80

Address
Stevinweg 1
2628 CN Delft

Region
West-Nederland > Zuid-Holland > Delft en Westland

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0.00

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FUNDACION IMDEA NETWORKS

Spain
Net EU contribution
€ 251 971.20
UNIVERSITA DEGLI STUDI DI TRENTO

Italy

Net EU contribution

€ 259,437,60

Address

Via calepina 14
38122 Trento

Region

Nord-Est > Provincia Autonoma di Trento > Trento

Links

Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Other funding

€ 0,00

NOKIA SOLUTIONS AND NETWORKS OY

Finland

Net EU contribution

€ 286,488,00

Address
Karaportti 3
02610 Espoo

Region
Manner-Suomi > Helsinki-Uusimaa > Helsinki-Uusimaa

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0,00

ROBERT BOSCH GMBH

Germany
Net EU contribution
€ 260 539,20

Address
Robert-bosch-platz 1
70839 Gerlingen-schillerhoehe

Region
Baden-Württemberg > Stuttgart > Ludwigsburg

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0,00

Partners (11)

FORD OTOMOTIV SANAYI ANONIM SIRKETI
Türkiye
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<td>Contact the organisation</td>
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<td>TELEFONICA INVESTIGACION Y DESARROLLO SA</td>
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<td>Ronda de la comunicacion s/n distrito c edificio oeste i 28050 Madrid</td>
<td>Comunidad de Madrid</td>
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NOKIA SOLUTIONS AND NETWORKS GMBH & CO KG

Germany

Net EU contribution
€ 0,00

Address
Werinherstrasse 91
81541 Munchen

Region
Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network

Other funding
€ 0,00

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TELEVIC HEALTHCARE NV

Belgium

Net EU contribution
€ 0,00

Address
Leo bekaertlaan 1
8870 Izegem

SME
Yes

Region
Vlaams Gewest > Prov. West-Vlaanderen > Arr. Roeselare

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
**PURELIFI LIMITED**

**United Kingdom**

**Net EU contribution**

€ 0,00

**Address**

51 timber bush
EH6 6QH Edinburgh

**SME**

Yes

**Region**

Scotland > Eastern Scotland > Edinburgh

**Activity type**

Private for-profit entities (excluding Higher or Secondary Education Establishments)

**Links**

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- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

**Other funding**

€ 0,00

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**TRUSTEES OF PRINCETON UNIVERSITY**

**United States**

**Net EU contribution**

€ 0,00

**Address**

Nassau hall 1
08544-2001 Princeton, nj

**Activity type**

Higher or Secondary Education Establishments

**Links**
University of California, Los Angeles

United States

Net EU contribution
€ 0,00

Address
404 westwood plaza,
90095 Los angeles

Activity type
Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)

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Other funding
€ 0,00

NORTH CAROLINA STATE UNIVERSITY

United States

Net EU contribution
€ 0,00

Address
Sullivan drive 270 suite 240 box 7514
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Activity type
Higher or Secondary Education Establishments

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UNIVERSIDAD CARLOS III DE MADRID

Spain

Net EU contribution

€ 0,00

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Calle madrid 126
28903 Getafe (madrid)

Region

Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type

Higher or Secondary Education Establishments

Links

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Website
Participation in EU R&I programmes
HORIZON collaboration network

Other funding

€ 0,00

EC signature date 21 June 2023
Last update: 24 July 2023

Permalink: https://cordis.europa.eu/project/id/101119652

European Union, 2023