

we accelerate Ukraine's critical infrastructure recovery

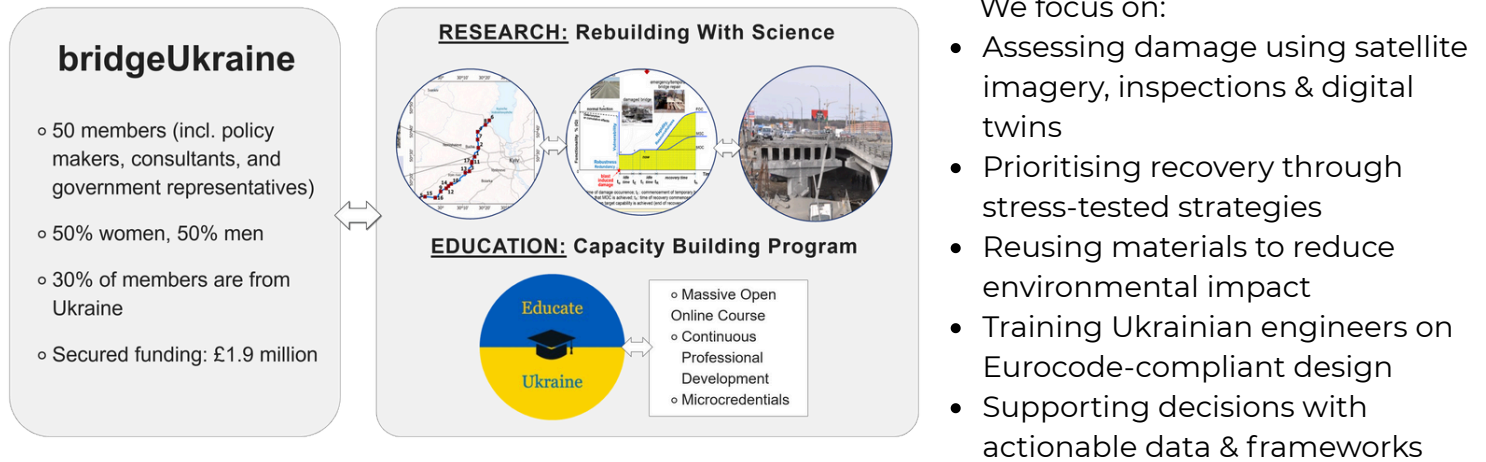


NEWSLETTER 2025

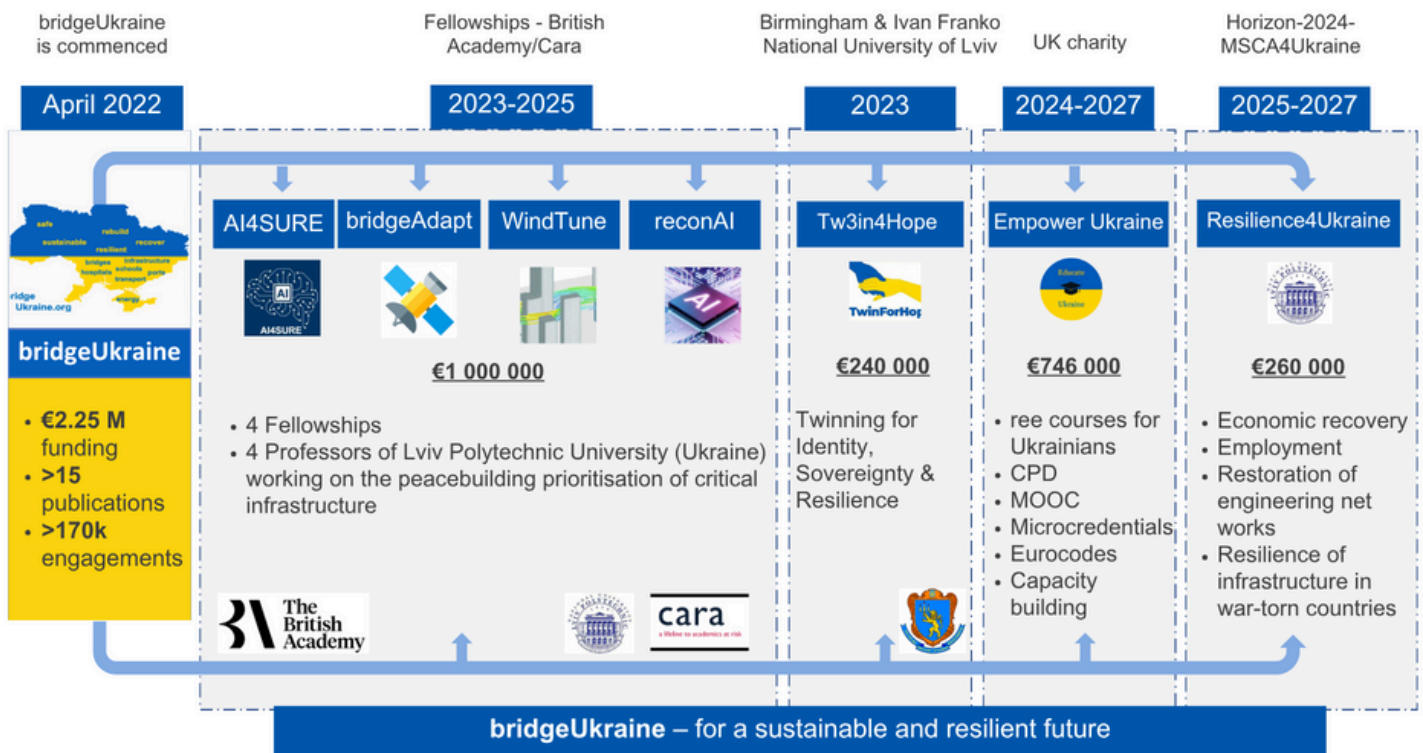
bridgeUkraine.org is a non-profit alliance of more than 50 practitioners, consultants, academics, institutions, and international bodies that are tasked to accelerate Ukraine's critical infrastructure recovery.

Our Activities

bridgeUkraine.org supports Ukraine's rebuilding with sustainable, resilient, and data-driven solutions. With over 20 years of experience, we help partners rebuild Ukraine smarter, safer, and more connected communities.



Secured Funding



Our Vision

Our vision is to ensure critical decisions for financing and reconstruction are grounded in evidence by collecting and analysing data – from satellite imagery to digital twins – to prioritise what matters most for Ukraine's future. To realise this vision, we seek partnerships with researchers, experts, charities, and non-profits, as well as research funding and on-the-ground collaboration in Ukraine, to rebuild a country where people feel integrated, secure, and hopeful for the future.

Our Research

- Developing AI-powered and big data-driven methods for decision-making in post-war recovery
- Use of machine learning, genetic algorithms, and remote sensing to optimize reconstruction planning
- Data-mining techniques to assess infrastructure damage and restoration strategies
- Optimizing resilience and sustainability for infrastructure restoration
- Use of digital data and disparate knowledge sources for optimizing infrastructure resilience
- Climate adaptation & zero-energy building design
- Conflict & climate resilience in infrastructure recovery



Our Publications

- Kopiika N, Karavias A, Krassakis P, Ye Z, Ninic J, Shakhovska N, Argyroudis S, Mitoulis SA (2025). Rapid post-disaster infrastructure damage characterisation enabled by remote sensing and deep learning technologies—a tiered approach. Automation in Construction, 170, 105955, <https://doi.org/10.1016/j.autcon.2024.105955>
- Shakhovska N, Mochurad L, Caro R, Argyroudis S. (2025). Innovative machine learning approaches for indoor air temperature forecasting in smart infrastructure. Scientific Reports, 15(1), 47 <https://doi.org/10.1038/s41598-024-85026-3>
- Zanevych Y, Yovbak V, Basystiuk O, Shakhovska N, Fedushko S, Argyroudis S (2024). Evaluation of Pothole Detection Performance Using Deep Learning Models Under Low-Light Conditions, Sustainability, 16(24), 10964; <https://doi.org/10.3390/su162410964>
- Izonin I, Muzyka R, Tkachenko R, Gregus M, Kustra N, Mitoulis SA (2024). An approach toward improvement of ensemble method's accuracy for biomedical data classification. International Journal of Electrical and Computer Engineering <https://ijece.iaescore.com/index.php/IJECE/article/view/35701>
- Izonin I, Muzyka R, Tkachenko R, Dronyuk I, Yemets K, Mitoulis S-A. (2024). A Method for Reducing Training Time of ML-Based Cascade Scheme for Large-Volume Data Analysis. Sensors24(15):4762. <https://doi.org/10.3390/s24154762>
- Kopiika N, Ninic J, Mitoulis S (2024). Damage characterisation using Sentinel-1 images, IABSE Symposium: Construction's Role for a World in Emergency – Manchester, United Kingdom, DOI: 0.2749/manchester.2024.0367
- Izonin I, Kazantzi A, Tkachenko R, Mitoulis SA (2024). GRNN-based Cascade Ensemble Model for Non-Destructive Damage State Identification: Small Data Approach. Engineering with Computers <https://doi.org/10.1007/s00366-024-02048-1>
- Shakhovska N, Yakovyna V, Mysak M, Mitoulis SA, Argyroudis S, Syerov Y. (2024). Real-Time Monitoring of Road Networks for Pavement Damage Detection Based on Preprocessing and Neural Networks. Big Data and Cognitive Computing, 8(10), 136. <https://doi.org/10.3390/bdcc8100136>
- Izonin I, Nesterenko I, Kazantzi AK, Tkachenko R, Muzyka R, Mitoulis SA (2024). Enhanced ANN-based ensemble method for bridge damage characterization using limited dataset. Scientific Reports, 14(1), 24395. <https://doi.org/10.1038/s41598-024-73738-5>
- Myroniuk K, Furdas Y, Zhelykh V, Adamski M, Gumen O, Savin V, Mitoulis SA (2024). Passive Ventilation of Residential Buildings Using the Trombe Wall. Buildings, 14(10), 3154. <https://doi.org/10.3390/buildings14103154>
- Izonin I, Tkachenko R, Mitoulis SA, Famarzi A, Tsmots I, Mashtalir D. (2024). Machine learning for predicting energy efficiency of buildings: a small data approach. Procedia Computer Science, 231, 72-77 <https://doi.org/10.1016/j.procs.2023.12.173>
- Kopiika N., Robery, P., Ninic, J., & Mitoulis, S. A. (2025). Remaining Life of Ageing RC Infrastructure for Sustainable development—Deterioration Under Climate Change. Case Studies in Construction Materials, 22. <https://doi.org/10.1016/j.cscm.2025.e04757>

Our Educational Project “Empower Ukraine”

Capacity Building for Critical Infrastructure Restoration in Ukraine

“Empower Ukraine” is a three-year capacity-building project dedicated to educating Ukrainian engineers in Eurocode-based infrastructure design and construction to support Ukraine’s sustainable recovery.

Through a well-structured programme of Massive Online Open Course (MOOC), Microcredentials and Continuing Professional Development (CPDs) early-career researchers and engineers will gain essential design and construction skills to repair and improve critical facilities and infrastructure across Ukraine. Participants will be mentored by experienced academics, gaining expertise, skills, and accreditations while accessing further training, work placements, and apprenticeship opportunities.



Bilingual MOOC:

- Over 120 lecture hours
- 4 modules on restoration of infrastructure
- 40 weeks of attendance
- 5,000 students have learned about Eurocodes



Microcredentials Integrated within MOOC:

- 30 early career engineers
- 10 Ukrainian lecturers
- 10 professional engineers working on reconstruction projects



Tailored Seminars and CPD Activities:

- 10 x 3-hour CPDs per year for 3 years
- Shaping community of practice for inclusive infrastructure reconstruction



Professional Engineers in Policy-making Roles:

- 10 policymakers
- 4 white papers on Eurointegration
- 5 Ukrainian national design standards aligned to Eurocodes

Massive Open Online Courses

Sustainable, Resilient, and Inclusive Infrastructure

Learn to design infrastructure systems that are environmentally sustainable, socially inclusive, and resilient to climate and disaster risks. Focus areas include Eurocodes, nature-based solutions, and green reconstruction strategies.

Design of Bridges and Transport

Explore prestressing techniques, structural modelling, load analysis, and anchorage design. The course emphasizes durability, maintenance, and compliance with service and ultimate limit state requirements.

Digital Resilience in Infrastructure: Modelling, Monitoring, and Intelligent Systems

Discover how digital tools like BIM, digital twins, and IoT support smart infrastructure. Topics include real-time monitoring, predictive maintenance, and intelligent decision-making for resilient systems.

Legal, Safety, Standards & Project Management

Gain practical skills in legal compliance, risk management, budgeting, procurement, and project planning. The course covers Eurocodes, Ukrainian regulations, and key project management frameworks.

Our News

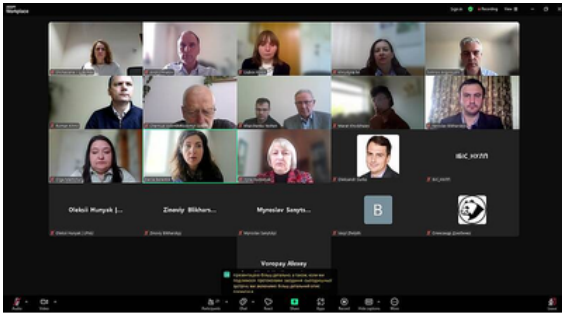


June, 2025, Founder of the bridgeUkraine Alliance Joining University College London:

Dr Stergios-Aristoteles Mitoulis, founder of the bridgeUkraine Alliance, has been appointed Associate Professor at The Bartlett School of Sustainable Construction, University College London (UCL), the world's top-ranked institution for Architecture and the Built Environment according to the 2024 QS World University Rankings by Subject. In recognition of his academic contributions, he has also been awarded an Honorary Professorship at the University of Birmingham.

June 30, 2025: bridgeUkraine and Kharkiv National Automobile and Highway University Explore Joint Research in Smart Energy and Urban Resilience

A meeting aimed to explore collaborative opportunities in sustainable and resilient energy systems and ongoing research in areas such as AI-controlled smart grids and structural challenges in renewable infrastructure. The discussion focused on smart cities, renewable energy integration, climate hazard adaptation, and advanced energy technologies.



May 23, 2025: UA-UK Online Academic Roundtable: Advancing Collaboration in Infrastructure Research

The University of Birmingham hosted an online academic roundtable, to strengthen UK-Ukraine collaboration in sustainable infrastructure. Ukrainian universities shared research priorities and collaboration goals, while the University of Birmingham highlighted joint project opportunities. The session closed with discussion on synergies and funding avenues, including Horizon Europe.

May 20, 2025: Celebrating Science, Technology and Innovation through the UK-Ukraine 100 Year Partnership Event in London

bridgeUkraine team participated in the launch of the Science, Technology, and Innovation pillar of the UK-Ukraine 100 Year Partnership at the British Academy. This event celebrated the past, present, and future of UK-Ukraine partnerships in science and technology, providing a platform to strengthen long-term connections between research and innovation communities to support Ukraine's recovery and drive mutual growth.



May 20-21, 2025: Rebirth Of Ukraine: UA-UK Trade Mission in London

bridgeUkraine Team was honoured to participate into UA-UK Trade Mission "Rebirth of Ukraine" event.

The "REBIRTH OF UKRAINE" Trade Mission to London is designed and will be held to bring together British and Ukrainian businesses, municipalities, venture capitalists, impact investors, donors, financial institutions, angel and corporate investors, academia and government organizations to promote the reconstruction and economic recovery of Ukraine and establish long-term mutually beneficial relationships with international partners.

May 16, 2025: Employment Strategy for the People of Ukraine Event in Kyiv

The bridgeUkraine team participated in the working group meeting on "Labour Supply" as part of Ukraine's Employment Strategy, led by the Ministry of Economy of Ukraine.

Our team continues to contribute expertise towards building a resilient, inclusive labour market for Ukraine's recovery by developing a MOOC for Ukrainian engineers to help them gain employment and actively participate in the country's reconstruction.



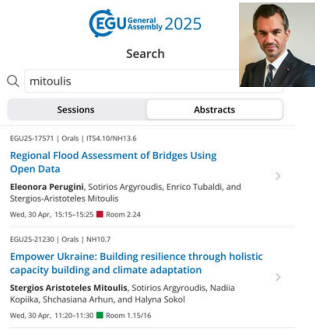
Our News

May 1, 2025: ICE West Midlands President's Visit: A new breed of infrastructure in Birmingham

bridgeUkraine members joined a panel of professionals as they discuss the delivery of a new breed of infrastructure. Joining the panel is ICE President,

Prof Jim Hall, as part of his annual visit to the West Midlands.

The discussion focused on the importance of systems engineering - the multidisciplinary approach that focuses on designing, integrating, and managing complex systems throughout their lifecycle, ensuring they meet requirements and function as intended.



27 April-2 May, 2025: bridgeUkraine at EGU General Assembly in Vienna

Prof Stergios Mitoulis, founder of the Alliance, contributed to the European Geosciences Union 2025 in Vienna, showcasing cutting edge research across multiple sessions.

Highlights include:

“Empower Ukraine: Building resilience through holistic capacity building and climate adaptation” presented by Dr Stergios Mitoulis



April 16, 2025: Recovery Construction Forum in Kyiv

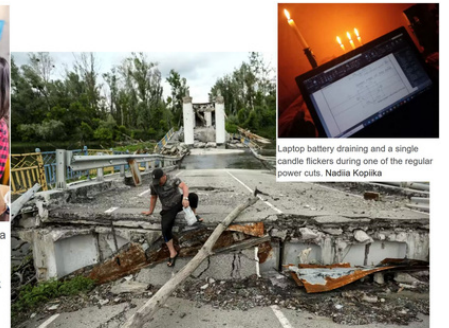
Nadiia Kapiika has visited the Recovery Construction Forum – the space full of urgent, practical discussions on rebuilding smarter, faster, and more sustainably. Forum bringing together government representatives along with the construction community to discuss current challenges in the industry and effective coordination efforts towards the reconstruction of Ukraine.

April 5, 2025: THE CONVERSATION, Engineering hope: how I made it my mission to help rebuild Ukraine's critical infrastructure

A member of bridgeUkraine Alliance, Ukrainian engineer Nadiia shares her deeply personal mission to restore her country's vital infrastructure in the face of devastation. From blackouts to broken systems, her story is one of courage, resilience, and national pride -reflecting the spirit of Ukraine's recovery. Full article can be read [here](#)



From the first day of the invasion, Nadiia began volunteering at Lviv Polytechnic National University helping to weave camouflage nets. @kathryn_moskalyuk



A resident crosses the Siverskyi Donets River on a destroyed bridge in Bohorodchne village, Donetsk, in May 2023. EPA-EFE/OLEG PETRASZYUK



March 27-28, 2025, UK-Ukraine Showcase and Networking Event 2025 in Liverpool

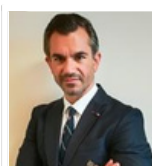
bridgeUkraine team: Stergios Mitoulis, Sotirios Argyroudis, Dariia Berestok, and Shchasiana Arhun participated in the UK-Ukraine Research Twinning Showcase at the University of Liverpool. They highlighted key achievements of the BridgeUkraine initiative, including the Empower Ukraine project, which trains engineers in Eurocodes to support Ukraine's science-based and sustainable reconstruction.

March 20, 2025: Professor Nataliya Shakhovska Elected as the New Rector of Lviv Polytechnic National University

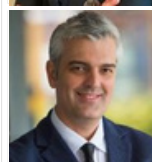
Prof. Nataliya Shakhovska, who is a distinguished member of the bridgeUkraine Alliance, has been officially elected as the Rector of Lviv Polytechnic National University, receiving 55.09% of the vote (1868 votes). This prestigious appointment reflects her outstanding leadership, academic excellence, and dedication to advancing higher education. We extend our sincere congratulations and look forward to her continued contributions in this important role.



Our Core Team

**Dr Stergios Aristoteles Mitoulis, Founder**

Head of Structures, Associate Professor, Bartlett School of Sustainable Construction University College London, PhD, DiplEng, MSc, CEng MICE, M.ASCE, M.EAEE, FHEA
resilience of transport assets; monitoring-driven resilience of infrastructure; damage-free; zero-maintenance bridges; Eurocode expert

**Dr Sotirios Argyroudis, Co-Founder**

Associate Professor (Reader), Brunel University of London, PhD, DiplEng, BSc, CEng MICE, FHEA risk and resilience assessment of critical infrastructure and networks; multiple hazards & climate change effects

**Nadiia Kopiika, Research Fellow**

Lviv Polytechnic National University, British Academy/CARA strength and reliability; strengthening; retrofitting, material properties; probabilistic approaches; non-destructive methods

**Dr Khrystyna Myroniuk, Research Fellow**

Associate Professor, British Academy/CARA, Lviv Polytechnic National University heating, ventilation, and air conditioning; energy-saving buildings; EU standards; resource-saving technologies

**Dr Shchasiana Arhun, Teaching Fellow**

University of Birmingham, Prof. at Kharkiv National Automobile & Highway University sustainable transport; energy-saving and energy-efficient technologies in transport; renewable energy integration in transport

**Marat Khodzhaiev, Civil/Bridge Engineer**

MSc, Kyiv, Ukraine

**Dariia Berestok, Project Manager**

University of Birmingham
project management; communication; coordination; stakeholder engagement; process optimisation

Contacts

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For more information about our team and research project portfolio, visit:

<https://www.bridgeukraine.org>



For more information please visit our webpage:

www.bridgeUkraine.org



For networking with bridgeUkraine alliance, Ukrainian engineers and official institutions, please scan QR code and fill out the form