



Polish Open Science Conference 2024

**Data in the Service
of Science and Society**

📅 10-12.04.2024 📍 Cracow, Poland



Katarzyna Lechowska-Winiarz

ACK Cyfronet AGH

Breaking down barriers to open science.

Challenges and needs of different actors in the scientific ecosystem

Heroes of our story

- **Maria - researcher**
- **Anna - PhD student**
- **Sarah - librarian**
- **Joanna - senior researcher**
- **Martti - data scientist**
- **Elena - innovator**
- **Mila - research community representative**
- **Hans - policymaker**
- **Dimitrios - funder**
- **Juan - associate professor**
- **Erik - professor**
- **Pierre - computing and storage provider**

Maria Lorenzo (researcher)

Age: 32 yo

Nationality: Italian

Current Position: Postdoctoral Researcher

Characteristic: Dedicated scientist with a deep passion for cancer research. Involved in collaborative research projects within her university and at the European level.

Scientific interests: Maria is focused on understanding the biophysical mechanisms underlying cancer cell behavior. She's particularly interested in developing innovative therapies that harness biophysics to improve cancer treatment outcomes. She conducts studies at computational modeling of cancerous cell behavior.

Short-term goal: publishing her latest research findings on cancer cell dynamics in a reputed scientific journal attending an international biophysics conference to network and exchange ideas with fellow researchers.

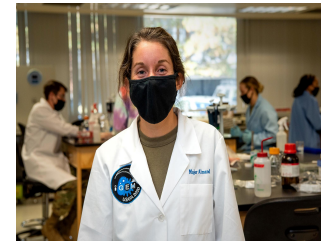
Long-term goal: establishing herself as an expert in the biophysics of cancer treatment and lead a multidisciplinary research team focused on developing innovative cancer therapies.

Needs:

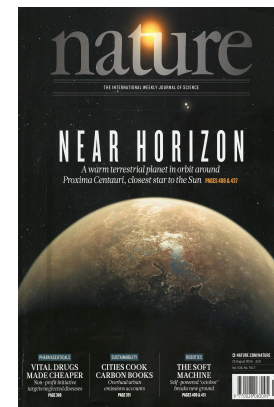
- well-documented, reliable working environment with all necessary tooling, easy to set up, deploy and scale,
- access to cutting-edge research publications and data for her ongoing projects,
- collaborative tools and platforms for seamless communication with international research partners,
- training resources to enhance her computational modeling skills,
- secure and reliable data storage solution for her research data.

Frustrations:

- difficulty in finding relevant, up-to-date research papers and datasets,
- limited funding opportunities for her innovative research projects,
- overwhelming workload and time constraints,
- concerns about data security and privacy in collaborative research,



"In the pursuit of knowledge and innovation, there are no shortcuts."



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Anna Kovács (PhD student)

Age: 27 yo

Nationality: Hungary

Current Position: Ph.D. Student

Characteristic: PhD student specializing in History & Archaeology. Focused on uncovering hidden historical narratives through archaeological digs and archival research.

Scientific interests: Maria is passionate about archaeological fieldwork, ancient civilizations, preservation of cultural heritage, historical narratives and data-driven historical analysis.

Short-term goal: completing her Ph.D. thesis on one of an ancient civilization's cultural evolution and publishing a research paper on recent archaeological discoveries.

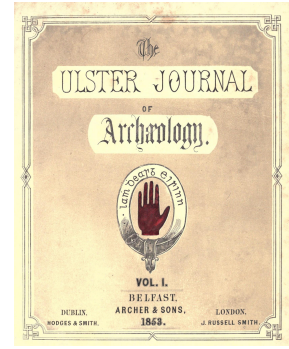
Long-term goal: secure a faculty position at European university and lead international archaeological expeditions and contribute to preserving cultural heritage.

Needs:

- access to historical archives and datasets from different regions,
- collaborative research platforms for sharing archaeological findings,
- high-quality imaging and documentation tools for artifacts,
- training in advanced data analysis techniques,

Frustrations:

- limited access to funding for archaeological fieldwork,
- difficulty in finding well-preserved historical artifacts,
- balancing fieldwork with academic responsibilities,
- ensuring the authenticity and integrity of historical data.



"Unearth the past, shape the future."



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Sarah Borg (librarian)

Age: 34

Nationality: Maltese

Current Position: Academic Librarian

Characteristic: experienced librarian committed to facilitating access to research materials, known for her expertise in digital archiving and information retrieval,

Scientific interests: preserving and curating digital research collections, making scholarly content easily accessible to researchers,

Short-term goal: implement data validation and quality control mechanisms for the digital collections, improve the library's online search and discovery interface and collaborate with researchers and fellow librarians to create open-access digital collections,

Long-term goal: establish a national digital archive for cultural and scientific heritage, advocate for open access to all scholarly literature and complete a Ph.D. in digital librarianship.

Needs:

- tools and methodologies for assessing and improving data quality,
- space for collaboration with data stewards, librarians, researchers and archivists,
- funding and support for initiatives to combat dishonest practices in science and predatory journals as well as to promote quality publishing.
- access to training in digital archiving and guidelines for implementing persistent identifiers,

Frustrations:

- balancing the need for open access with concerns about data quality and credibility.
- copyright restrictions on digital collections,
- lack of standardized data quality assessment methods,
- limited budget for digitization efforts,



"Ensuring Quality,
Encouraging Equity"



Joanna Cieślak (senior researcher)

Age: 46 yo

Nationality: Polish

Current Position: Senior Researcher in Particle Physics

Characteristic: A particle physicist known for her rigorous approach to experimental research, specializing in high-energy particle collisions. While she excels in her field, she occasionally faces challenges when striving to contribute effectively to international collaborations.

Scientific interests: particle collisions and high-energy physics, dark matter and dark energy, advancements in particle accelerator technology,

Short-term goal: strengthen collaboration skills and networks within the international particle physics community and secure funding and resources for ongoing experiments to make incremental advancements in particle physics research.

Long-term goal: co-lead a multinational and diverse research consortium focused on a specific area of particle physics and publish a series of seminal papers and contribute to major breakthroughs in understanding dark matter and energy.

Needs:

- access to platforms and networks that actively promote international collaborations, connect with other female scientists and researchers from underrepresented regions to foster a more inclusive research environment.
- access to advanced data verification and quality control tools,
- grant writing and funding support system

Frustrations:

- intense competition for limited research opportunities,
- problems with rising above national science;
- ensuring the accuracy of complex data analysis,
- maintaining work-life balance in a demanding research field,
- Data storage, preservation and retrieval challenges



**"Navigating Particles,
Shattering
Stereotypes"**



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Martti Kask (data scientist)

Age: 28

Nationality: Estonian

Current Position: Data Scientist at a Research Institute

Characteristic: young and ambitious data scientist specializing in applying machine learning to music analysis. His innovative applications of AI in the music industry have gained him recognition for his creative approach to research.

Scientific interests: leveraging data science to transform the music industry, developing algorithms for music recommendation, sentiment analysis of songs, and exploring the impact of AI-generated music on culture

Short-term goal: create a personalized music recommendation system based on emotional context, investigate the impact of music on mental health and present findings at a music technology conference.

Long-term goal: influence music streaming platforms to adopt AI-driven curation and publish a book on the intersection of data science and music

Needs:

- access to diverse and comprehensive music datasets,
- tools for preserving and sharing audio cultural heritage,
- collaboration with musicians and musicologists,
- open-source code repositories,
- solutions for navigating complex intellectual property rights in music data,

Frustrations:

- limited access to high-quality, annotated music datasets.
- intellectual property challenges in using copyrighted audio for research.
- balancing the technical aspects of data analysis with the nuances of music theory,
- overcoming barriers to integrating music into mental health treatments;
- interdisciplinarity of research.



"In a World of
Numbers, I Find the
Music"



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Elena Alexandru (innovator)

Age: 35 yo

Nationality: Romanian

Current Position: Postdoctoral researcher of Biomedical Engineering

Characteristic: Dr. Kovac is known for her significant work in developing affordable medical devices for rural healthcare in Romania (low-cost diagnostic tools, remote patient monitoring devices),

Scientific interests: Biomedical engineering, healthcare innovation, medical device design.

Short-term goal: secure funding for a clinical trial of her latest medical device and publish a paper on her recent research in a high-impact journal.

Long-term goal: secure funding and establish a company focused on healthcare innovation in Romania and collaborate with international partners to expand access to her medical devices globally.

Needs:

- access to funding opportunities, specifically tailored to medical innovation, as clinical trials can be expensive and time-consuming.
- assistance with administrative regulations associated with conducting clinical trials, ensuring compliance with ethical standards and patient consent
- access to high-quality repositories and platforms that adhere to the FAIR principles to easily discover and access relevant data.
- a platform to showcase her research and connect with potential collaborators,

Frustrations:

- limited funding options for innovative medical projects in Romania.
- difficulty in finding skilled collaborators within her country.
- complex and time-consuming regulatory processes,
- the risk of data breaches and the need for strict data security measures



"Innovations in
service of public
health"



Mila Kovačić (research community representative)

Age: 51 yo

Nationality: Croatian

Current Position: Research Coordinator in European Marine Biology Consortium

Characteristic: experienced researcher who committed to fostering collaboration among scientists in her field of marine biology. She is known for her dedication to open science practices and international cooperation.

Scientific interests: Ana's research interests revolve around marine biodiversity and conservation. Her mission is to facilitate open access of marine research data and publications, with a primary focus on the Adriatic Sea while also promoting data sharing among scientists studying various seas and oceans.

Short-term goal: lead an international conference on marine conservation to unite experts worldwide and establish a cross-border research consortium addressing the impacts of climate change on Adriatic Sea ecosystems.

Long-term goal: create and maintain a comprehensive open-access database showcasing Adriatic Sea marine species and forge a global network of marine scientists dedicated to collaborative research.

Needs:

- access to platforms that facilitate cross-community communication and knowledge sharing
- funding opportunities for collaborative projects that involve multiple research communities,
- access to high-performance computing resources for data-intensive research,
- standardization of data formats and methods among scientists in her consortium,

Frustrations:

- identifying reliable data sources and suitable open-access platforms on the internet for global marine biodiversity research,
- interpersonal issues within the global researchers' society, including differing research priorities and approaches



"Unifying Waves of Knowledge, Preserving Oceanic Treasures"



Hans Steiner (policymaker)

Age: 47 yo

Nationality: Austrian

Current Position: Regional Policy Advisor, Office of the Governor, Lower Austria

Characteristic: long-time policymaker dedicated to integrating scientific and innovative research into regional development strategies, with a specific focus on Lower Austria.

Scientific interests: research-based regional development, innovation ecosystems, sustainable economic expansion,

Short-term goal: develop a comprehensive strategy to attract research-intensive industries to Lower Austria and launch initiatives to attract technology startups to Lower Austria's innovation hubs.

Long-term goal: create an innovation hub in Lower Austria, stimulating economic growth and job creation and promote sustainable and environmentally responsible regional development on European level.

Needs:

- access to the latest scientific research to inform regional development policies and strategies,
- collaboration with scientists, researchers, and industry experts to drive innovation in the region,
- reliable data on the impact of scientific research on society,
- stakeholder engagement platform that connects universities, research institutions, startups, and established businesses on local and European level.

Frustrations:

- balancing diverse interests and objectives of local businesses, academia, environmental groups in the pursuit of innovation.
- limited regional funding for research-intensive development projects,
- overcoming skepticism about the long-term economic benefits of investing in scientific research and innovation at the regional level,



"Innovation is the engine of regional progress"



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Dimitrios Papadopoulos (funder)

Age: 40 yo

Nationality: Greek

Current Position: Program Manager at the European Commission



Characteristic: A civil servant who has spent over a decade at the European Commission, managing research funding programs. He is known for his deep understanding of the European research landscape.

Scientific interests: Supporting research projects related to sustainable energy solutions, climate change mitigation, and healthcare advancements.

Short-term goal: Enhance his knowledge of evolving research areas to make informed funding decisions and cultivate collaborations between researchers and institutions to foster innovation.

Long-term goal: the best possible recognition of the market of science-related platforms and establishing a consulting company that helps in writing innovative projects in energy solutions and climate change mitigation.

Needs:

- better way of identifying high-impact research projects that align with the European Commission's research priorities,
- access to effective grant management tools and systems to streamline the allocation process, possibly integrated with other platforms dedicated to research projects.
- better system of facilitating collaborative project creation, tailored to the needs of funding agencies,
- transparency in the allocation of research resources and accountability mechanisms that ensure funded projects deliver on their promises,

Frustrations:

- balancing budget constraints while striving to support a diverse range of research initiatives,
- navigating the complexities of European regulations and grant allocation procedures,
- advocating for research projects that may face skepticism due to their innovative but unproven nature,
- resistance to change from various stakeholders, hesitant to adopt new methods and technologies,

"Unlocking Science's Potential in Europe"



Juan Hernandez (associate professor)

Age: 43 yo

Nationality: Spanish

Current Position: Associate Professor of Environmental Sciences

Characteristic: An ambitious environmental scientist dedicated to finding sustainable solutions for urban ecosystems.

Scientific interests: Urban ecology, green infrastructure, sustainable cities.

Short-term goal: secure funding for a collaborative research project on urban biodiversity and publish research findings in high-impact journal.

Long-term goal: attain a full professorship in environmental science and influence urban planning policies for sustainable cities.

Needs:

- access to comprehensive urban environmental data,
- funding opportunities for interdisciplinary urban research,
- collaboration platforms to engage with international experts,
- open-access platforms for sharing research with policymakers,
- APIs for integrating data,

Frustrations:

- Limited access to quality urban environmental datasets,
- Bureaucratic hurdles in securing research funding,
- Difficulty in communicating research impact to policymakers,



"Green cities for a brighter future"



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Erik Johansson (professor)

Age: 60 yo

Nationality: Swedish

Current Position: Professor of Electrical, Electronic & Information Engineering

Characteristic: An esteemed engineering professor known for pioneering work in the field of development of a sustainable and autonomous robotic system for precision agriculture.

Scientific interests: digital signal processing and telecommunications, robotics and automation, sustainable technology solutions

Short-term goal: building a group of implementation project collaborators from around the world and collaborate with industry partners on real-world applications.

Long-term goal: establish a research center for innovative technology development and mentor the next generation of engineering innovators.

Needs:

- access to multidisciplinary collaborations,
- access to data integration and analysis tools,
- platform for education with teaching materials, educational resources, outreach support and connecting with fellow educators,
- reliable data storage and computing resources,

Frustrations:

- balancing research, teaching, and administrative responsibilities,
- ensuring the relevance of research in rapidly evolving tech fields,
- data standardization challenges/various data collection systems and formats,
- cross-cultural communication challenges.



**"Empowering
Innovators, Guiding
Tomorrow's Engineers"**



Pierre Dupont (computing and storage provider)

Age: 39 yo

Nationality: French

Current Position: Chief Technology Officer (CTO) at a Cloud Computing Company

Characteristic: tech-savvy professional who specializes in providing computing and storage solutions to scientific communities, engaged in initiatives aimed at delivering storage and computing resources to advance innovative science, collaborating closely with the European Open Science Cloud, OpenAIRE, and similar platforms.

Scientific interests: intersection of high-performance computing and scientific research, optimizing data processing workflows for researchers, promotion of open science and data sharing.

Short-term goal: expand the company's cloud computing services for scientific research and actively engage in European research consortia to secure external funding for research infrastructure projects.

Long-term goal: develop cost-effective storage solutions for big data research and secure government contracts to support national research infrastructure in alignment with open science objectives,

Needs:

- access to the latest hardware and cloud technologies,
- APIs and tools for services,
- forming and maintaining strategic partnerships with similar research organizations (eg. EUDAT, CESSDA, EGI, OpenAire),
- developing secure and scalable data storage and backup solutions for the research community,

Frustrations:

- navigating data security and compliance challenges while facilitating open access to research resources,
- Identifying and recruiting top talent in cloud computing and data management,
- navigating complex regulatory and compliance requirements related to open science data.



**"Your Research,
Amplified by Our Cloud"**



Quiz time!



[Quizzz](#)

Thank you for your
audience.