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Deliverable D5.1 Report on network-wide training events (v1)

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X	PU = Public
	PP = Restricted to other programme participants (including the EC)
	RE = Restricted to a group specified by the consortium (including the EC)
	CO = Confidential, only for members of the consortium (including the EC)

European Commission

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CHANGE REGISTER

Version	Date	Author	Organisation	Changes
A_DRAFT	5-Feb-2021	Sandra Morales	UPV	First version
	10-Feb-2021	Kjersti Engan/Chunming Rong	UiS	UiS contribution
	10-Feb-2021	Russel Wolff	bY	bY contribution
	12-Feb-2021	Carlos Monteagudo	INCLIVA	INCLIVA contribution
	15-Feb-2021	Emiel Janssen	SUH	SUH contribution
	15-Feb-2021	Rafael Molina	UGR	UGR contribution
	17-Feb-2021	Valery Naranjo	UPV	UPV contribution
	18-Feb-2021	Zhiming Zhao	UvA	UvA contribution
	18-Feb-2021	Tahlita Zuiverloon	EMC	EMC contribution
	23-Feb-2021	Javier Oliver	TY	TY contribution
A	24-Feb-2021	Sandra Morales	UPV	Final version

Statement of independence

The work described in this document is genuinely a result of efforts pertaining to the CLARIFY project: any external source is properly referenced.

Confirmation by Authors: Sandra Morales UPV

Abbreviations

DoA Description of Action

ESR Early Stage Researcher

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1 Executive summary

This document should be a report on networking-wide training events carried out during the first year of the project. However, due to the delay in the project execution caused by the covid-19 outbreak, this report includes the events of the first 16 months.

The document describes the local training activities as well as the network-wide training ones.

Regarding the **local training activities**, the main goals of the project regarding the training are described and a short summary of the Ph.D. programs in which the ESRs have enrolled in the different Universities. The complementarity among these Ph.D. courses gives a broad idea of the complexity of the network and the ambitious goals.

In relation to the **networking-wide training events**, this report describes the first virtual field trip done in January 2021 and the different events attended by some of the ESRs. It is important to notice that the enrolment of the ESRs in the different institutions started in September 2020 and will be completed in February 2021 so there has been little time for focusing on training events but for the project implementation.

Deliverable 5.1 is under the Tasks T5.2 Implementation of network training activities and T5.3 Implementation of local training activities, within the DoA of the CLARIFY project.

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2 Introduction

As indicated in Annex 1 (part B) of the Grant Agreement (see page 118), the training programme will provide ESRs with enhanced career perspectives in both the academic and non-academic sectors (companies and hospitals) through international, interdisciplinary and inter-sectoral mobility combined with an innovation-oriented mind-set. The programme will run from the moment the ESRs are enrolled and throughout the recruitment period. CLARIFY's Training and Outreach Team (ToT), assessed by the Supervisory Board (SB), will be responsible to support the definition and monitoring of the Career Development Plans (CDPs), coordinate all aspects of CLARIFY's training programme, schedule and evaluate CLARIFY's activities and define any IPR issues arising from the project. ESRs will be monitored by a corresponding supervisory team.

CLARIFY's training philosophy is based on the EU principles for Innovative Doctoral Training, where ESRs receive solid theoretical foundations, acquire hands-on expertise in a wide spectrum of technical and clinical disciplines and enhance their innovation capability through transferable skills training courses. Taking this into account, CLARIFY's training programme builds upon the following pillars:

- A customised training programme for each ESR aligned with the corresponding IRP and reflected in a Career Development Plan (CDP) that comprises: 1) multi-disciplinary modules, 2) intersectoral components and 3) a wide range of transferable skills courses to support the ESRs' employability.

- High-level local training at the hosting institutions where they will perform training through research, enrolment in a PhD programme, secondments and training in technical or clinical (depending on the ESR's specialization) and transferable skills.

- A complete set of network training activities, in technical, clinical and transferable skills, to complement locally acquired knowledge and provide the opportunity to disseminate ESRs' advances and contact with stakeholders outside the network (Table 1.2b). Emphasis on gender aspects will be done from the methodological point of view, but also to promote and achieve a better participation of female scientists in engineering.

To sum up, the main training objective of CLARIFY is to provide a high-level personalised multidisciplinary training program both in technical including enrolment in a PhD program (in two tracks: engineering and medicine) and transferable skills (such as entrepreneurship, project management, ethical issues, IPR, open access) with the long-term ambition of evolving scientific leadership – a foundation for ERC starting grants and/or industry leadership - Industry Fellow.

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3 Training activities

3.1 Local training

3.1.1 Local Technical Training (PhD programmes)

All CLARIFY's ESRs are enrolled in a PhD programme at a University that will issue the corresponding title and will attend to the regular lectures, but also will get complimentary technical training to complete the multidisciplinary view they require to fulfil their IRPs and training in horizontal and transferable skills. In the following sections, there is a short description of the different Ph.D. programs in which the ESRs are enrolled from the moment of the recruitment.

ESR1 and ESR2 (UvA): Na Li / Yuandou Wang

ESR1 and ESR2 from University of Amsterdam (UvA) are enrolled in the PhD program in computer science of UvA. A detailed research plan of each ESR has been submitted to the PhD academic committee. During the PhD program, both ESRs will

- Actively select and follow courses in the domain of computer science, distributed computing, blockchain and data management from Dutch research school of ASCI (Advanced School for Computing and Imaging) and SIKS (School for Information and Knowledge Systems)
- Actively participate the education program as teaching assistants. Currently, both of them have already been involved in the master course DevOps and Cloud application in the program of software engineering program.
- Actively join the academic activities organized by the research group of MultiScale Networked Systems (MNS) at the University of Amsterdam, such as delivering technical presentations in the weekly meetings, participating monthly reading clubs of phd students.

During the PhD, both ESRs will develop their knowledge in the following key areas:

- Data management (curation, metadata, search and provenance)
- Distributed computing (data processing, distributed workflow management)
- Decentralized applications (blockchain, smart contracts)
- Computing systems for medical applications

ESR3 (bY), ESR4 and ESR5 (UiS): Jiahui Geng / Neel Kanwal / Saul Fuster Navarro

ESR3, ESR4 and ESR5 are enrolled in "The PhD programme in Science and Technology" at the University of Stavanger, in the specialisation "information technology, mathematics and physics", including the disciplines mathematics and physics, computer science and signal processing / cybernetics.

The PhD programme in Science and Technology offers five specialisations: Petroleum Technology, Offshore Technology, Information Technology, Mathematics and Physics, Risk Management and Societal Safety, and Chemistry and Biological Science.

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The PhD programme consists of mainly active research work under supervision, where the doctoral candidate normally collaborates with supervisors and other researchers. The programme has a training component where the candidate through courses, seminars and colloquia will get the professional and methodical training that is necessary, both for working on the thesis, but also to be able to convey and present own research. The standardised study period for the programme is 3 years.

The PhD programme in Science and Technology is structured with a training component of 30 credits and a research component of 150 credits. The training component is divided into three parts: programme courses, study courses and project courses, all worth 10 credits each.

ESR6 and ESR7 (UPV) and ESR9 (TY): Claudio Fernandez / Laëtitia Launet / Zahra Tabatabaei

ESR6 and ESR7 from UPV and ESR9 from TY are/will be enrolled in the “Programa de Doctorado en Tecnologías para la Salud y el Bienestar” of UPV. That is the Doctoral Program in Technologies for Health and Well-being.

The main objective of the doctoral programme in Technologies for Health and Well-being is the higher training of PhDs in the scientific-technological areas upon which the preventive, curative and support aspects of health and well-being are based. Specifically, four major areas of action are considered:

- Prevention of health risks
- Promotion and maintenance of health
- Recovery of health
- Promotion of personal autonomy and care for people in dependency situations

It is a complex and very interdisciplinary field that serves as a bridge between the fields of health and technology. Therefore, it covers several areas of knowledge in the fields of health, experimental areas, technical and social areas.

When they finish their Ph.D. program, they will be PhDs with extensive training in the area of health technologies and specialised in some of the areas indicated in the objectives section. These professionals master the use of different processing, analysis, modelling and instrumentation techniques applied to health, and have acquired competences for obtaining and analysing results and disseminating them through the writing and presentation of different works and reports. They are professionals prepared to work in the health technological industry who are aware of the latest advances in this field at national and international level.

ESR8 (UGR): Arne Schmidt

ESR8 at UGR is enrolled in the “Programa de Doctorado en Tecnologías de la Información y la Comunicación” of the Universidad de Granada, that is, the Doctoral Programme in Information and Communication Technologies.

The goal of this doctoral programme is the formation of PhDs in topics promoting knowledge creation, development and innovation in the field of Information and Communication Technologies (ICT) through scientific research and technological development at excellence levels.

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The professor staff is composed of internationally recognized scientists belonging to different research groups, mainly from the University of Granada. Among these lecturers we can find some of the most relevant researchers in the ICT area at global level.

The doctoral programme is in contact with professors and scientists from national and international Universities and Research Centers of worldwide renown. This enables ESR8 to collaborate with those institutions, as well as with a large number of companies related to the programme. Several members of those companies also act as lecturers in the programme formation plan. Besides, it is associated to Campus BioTic Granada of International Excellence and to the Research Centre on Information and Communication Technologies of the University of Granada (CITIC-UGR).

When ESR8 finishes the PhD. programme he should be able to theoretically model multidisciplinary research problems in collaboration with specialists from other fields and propose innovative solutions. He should be able to discuss and present results and have a broad knowledge about the latest research in his field.

ESR10 (EMC): Farbod Khoraminia

ESR 10 is part of the Erasmus MC Biomedical Sciences PhD program. Its goal is to help PhD students at Erasmus MC to become skilled, critical and independent researchers, which is considered the most important criterion for receiving a PhD degree. The PhD research project should eventually culminate in (first author) paper(s) and a well written thesis that reflects the high quality of the PhD work that was done. Student will become part of the Molecular Medicine Postgradute school. As part of the PhD program basic courses to be followed are listed below.

- Basic and translational oncology
- Photoshop and Illustrator CC 2019 Workshop for PhD students
- Course Biomedical Research Techniques
- Workshop presenting skills for PhD students and Post Docs
- Basic Introduction course on SPSS
- Biostatistical Methods I: Basic Principles
- Biomedical English Writing Course for MSc and PhD students
- Integrety in science - BROK

After finishing the PhD, ESR10 will have extensive knowledge on fundamental and more translational biomedical techniques. Knowledge and expertise have been acquired on the legal aspects of performing research on both a national and international level. More specifically, they will have gained competence in setting up biomedical research studies, analysis of results and dissemination through multiple channels, e.g. oral and poster presentations, teaching, which media channels to use and which stakeholders to involve. The ESR will be setup to continue biomedical research independently in different sectors.

ESR11 (SUH): Umay Kiraz

ESR11 from SUH will be enrolled in the doctoral programme at the Faculty of Science and Technology at UiS. That is the Doctoral Program in Chemistry and Biological Science.

Research in the area of chemistry and biosciences at the University of Stavanger (UiS) includes subjects such as repair of DNA damage, conversion of nutrients, breaking down pesticides and environmental toxins, environmentally-friendly manufacturing chemicals for the

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oil industry, biological rhythms, bioactive components in food, reaction kinetics, signal-transduction pathways, enzyme studies, modelling chemical and biological processes, purification and separation technology, plastid division and development, and studies into different types of cancer and processes that lead to neurodegenerative or immunological disorders.

The PhD programme is structured around a common academic and technological platform. This platform includes protein chemistry/enzymology, gene technology, spectroscopic methods, analytic and physical/biophysical chemistry, organic synthesis, cell/tissue culture, respirometry, applied microbiology and purification technology. Furthermore, the platform will include expertise in modelling chemical and biological processes, the practical application of bioinformatics and the application of regulatory technical aspects within signal and control processes.

ESR12 (INCLIVA): Andrés Mosquera

ESR12 is enrolled in the Doctoral programme in Medicine at Universitat de Valencia. The overall objective of the Doctoral Programme is to provide training in biomedical research to Graduates in Sciences and Health Sciences through the scientific method and the systematic process of an increasingly multidisciplinary, intersectoral and multi-person research. For this purpose, and in order to optimise the research activity, the doctoral students will be integrated into one of the many and consolidated lines of research and resources of the Departments of the Faculty of Medicine and the University Hospitals attached to it. The doctoral studies shall, at minimum, guarantee the acquisition by the doctoral students of the basic competencies which are in the Spanish Qualifications Framework for Higher Education, specifically: systematic understanding of a field of study of legal sciences, and mastery of its skills and methods of research; ability to conceive, design or create, implement and adapt a substantial process of research and creation; ability to make a critical and assessment analysis, and synthesis of new and complex ideas, as well as communication with the academic and scientific community and society in general about their fields of knowledge; and and ability to promote, within academic and professional contexts, scientific, technological, social, artistic or cultural advance in a knowledge-based society.

3.1.2 Local Fellow-tailored training courses

Individual PhD programmes alone will not cover the multidisciplinary knowledge that is required by CLARIFY's ESRs. Therefore, ESRs will additionally be introduced to general aspects of the other disciplines they will be in contact with. A series of technical workshops will take place at beneficiaries' or partners' facilities to allow hands-on practical training in these key areas. Both ESRs enrolled in the corresponding PhD programme and visiting ESRs (during secondments) will be able to benefit from these courses if available during their stay.

All CLARIFY Universities offer as well the possibility to follow a variety of on-site transferable skills courses as supplementary optional training. As a result, each ESR will be able to follow the most suitable transferable skills courses available on-site, which will be identified during the definition of their CDPs. However, in order to assure that all ESRs receive a consistent and coherent training in transferable skills, CLARIFY will organise compulsory specialised seminars and workshops that will take place as network-wide training events.

MOOCs offer a powerful tool which empowers learning through the introduction of innovative elements, both technological and pedagogical. ESRs will be able to delve into specific aspects

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of their interest through complementary online courses, as part of their Career Development Plans.

In the following sections, the local fellow-tailored training courses where the fellows have participated or are enrolled are detailed:

ESR1 (UvA): Na Li

As a PhD student in the University of Amsterdam, ESR1 will follow (has followed) basic skill training courses offered by UvA, including:

- Faculty introduction (Interpersonal skills)
- Mastering your PhD (Planning & organising skills Interpersonal skills Presentation skills Professional developmental skills)
- Training in teaching skills (Didactic skills)
- Trust in science (Academic integrity)
- Job and career planning (Professional developmental skills)
- Planning thesis (Planning & organising skills)

ESR1 will also follow the courses on the following scientific topics:

- Semantic search, Knowledge graph (online open course)
- Cloud computing, Blockchain, Decentralized application (Self-study and TA of Bachelor or Master course
- Big data management, Medical data management,Scientific workflow management (self-study, ASCI or summer schools)
- Machine learning, Recommender system (ASCI or SIKS research school)

ESR2 (UvA): Yuandou Wang

As a PhD student in the University of Amsterdam, ESR2 will follow (has followed) basic skill training courses offered by UvA, including:

- Faculty introduction (Interpersonal skills)
- Mastering your PhD (Planning & organising skills Interpersonal skills Presentation skills Professional developmental skills)
- Training in teaching skills (Didactic skills)
- Trust in science (Academic integrity)
- Job and career planning (Professional developmental skills)
- Planning thesis (Planning & organising skills)

ESR2 will also follow the courses on the following scientific topics:

- Cloud computing, Blockchain, Decentralized application (Self-study and TA of Bachelor or Master courses)
- Academic writing for PhDs (PhD course at UvA)
- Blockchain (advanced study at ASCI or summer schools)

ESR3 (bY): Jiahui Geng

i. TN900 Theory of Science and Ethics (5 ECTS), Spring 2021

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The structure of a scientific theory will be discussed in this course, and each of the elements of the structure (assumptions, deductions, statements and testing), and the interconnection between them will be thoroughly discussed and illustrated by examples from the history of science.

ii. TN910 Innovation in Research Project (5 ECTS), Spring 2021

This course will demonstrate the understanding of how research results can lead to innovation, i.e. be implemented to achieve the intended benefits to society. Another purpose is to raise the candidates' awareness of wider societal implications of research and innovation.

iii. DAT912 Formal Methods of Specifying Systems (10 ECTS), Spring 2021

The course covers advanced topics in formal methods for specifying systems, with particular emphasis on tools for model checking and proving safety and liveness properties of system designs and specifications

iv. DAT930 PhD Project Course in Computer Science (10 ECTS), Spring 2021

Subtitle: “Blockchain” The candidate will pursue following courses on “The Linux Foundation Training” as a part of DAT930: Hyperledger Fabric for Developers (LFD272)

ESR4 (UiS): Neel Kanwal

i. TN900 Theory of Science and Ethics (5 ECTS), Spring 2021

The structure of a scientific theory will be discussed in this course, and each of the elements of the structure (assumptions, deductions, statements and testing), and the interconnection between them will be thoroughly discussed and illustrated by examples from the history of science.

ii. TN910 Innovation in Research Project (5 ECTS), Spring 2021

This course will demonstrate the understanding of how research results can lead to innovation, i.e. be implemented to achieve the intended benefits to society. Another purpose is to raise the candidates' awareness of wider societal implications of research and innovation.

iii. DAT912 Formal Methods of Specifying Systems (10 ECTS), Spring 2021

The course covers advanced topics in formal methods for specifying systems, with particular emphasis on tools for model checking and proving safety and liveness properties of system designs and specifications.

iv. ELE920 PhD Project in Cybernetics and Signal Processing (10 ECTS), Fall 2020

Subtitle: “Deep Learning for Medical Applications The candidate will pursue following courses on Coursera (MOOCs) as a part of ELE920:

AI for Medicine Specialization by deeplearning.ai

- AI for Medical Diagnosis
- AI for Medical Prognosis
- AI for Medical Treatment

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Deep Learning Specialization by deeplearning.ai

- Structuring Machine Learning Projects
- Convolutional Neural Networks

ESR5 (UiS): Saul Fuster Navarro

i. TN900 Theory of Science and Ethics (5 ECTS), Spring 2021

The structure of a scientific theory will be discussed in this course, and each of the elements of the structure (assumptions, deductions, statements and testing), and the interconnection between them will be thoroughly discussed and illustrated by examples from the history of science.

ii. TN910 Innovation in Research Project (5 ECTS), Spring 2021

This course will demonstrate the understanding of how research results can lead to innovation, i.e. be implemented to achieve the intended benefits to society. Another purpose is to raise the candidates' awareness of wider societal implications of research and innovation.

iii.ELE510 Image Processing and Computer Vision (10 ECTS), Fall 2020

Image processing is used in a growing number of applications in our daily lives as well as in research. Image processing is utilized for medical images in addition to robot vision. Thus, an understanding of classical image processing and computer vision is useful in many fields.

iv. ELE920 PhD Project in Cybernetics and Signal Processing (10 ECTS), Fall 2020

Subtitle: “Deep Learning for Medical Applications The candidate will pursue following courses on Coursera (MOOCs) as a part of ELE920:

AI for Medicine Specialization by deeplearning.ai

- AI for Medical Diagnosis
- AI for Medical Prognosis
- AI for Medical Treatment

Deep Learning Specialization by deeplearning.ai

- Structuring Machine Learning Projects
- Sequence Models

ESR6 (UPV): Claudio Fernandez

After his enrolment at the Doctoral Program in Technologies for Health and Well-being of the UPV, ESR6 will choose among the cross-curricular training courses offered by the Doctoral School.

- 40000. Scientific communication: High standard methods for scientific production and communication
- 40001. Scientific documentation
- 40002. Scientific dissemination strategies for researchers
- 40003. Ethics in research

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- 40004. Research career
- 40005. Protection of research results: Industrial and intellectual property and other protection systems.
- 40006. Transfer of knowledge
- 40007. Research methodologies
- 40008. Qualitative research methodologies in social sciences and humanities
- 40009. Statistics and mathematical methods for research: Introduction to statistical techniques for research
- 40010. Numerical Methods with MATLAB
- 40011. Computer tools for research: composition of high-quality documents and presentations with LATEX
- 40012. Computer tools for research: Scientific computing
- 40013. Entrepreneurship and creation of Startups
- 40014. Applied Research Methodology
- 40015. Re-writing science. How to avoid mistakes in written and spoken scientific English
- 40016. Gender Perspective in Research
- 40017. Scientific Image
- 40018. Applied Network Analysis: Science Map Visualization
- 40019. Doctoral Training at the UPV

Each on-line course is equivalent to 20 hours of class, except for 40014-Applied Research Methodology which is equivalent to 60 hours. The doctoral student will have to obtain a minimum of 60 equivalent hours in cross curricular training courses.

Besides, as part of his virtual secondment at ROCHE Diagnostics S.L. in March 2021, ESR6 will participate in different workshops organized by ROCHE. These conferences will involve diverse topics related to cancer, including the following:

Synchronic workshops:

- New Tools for the Diagnosis of Breast Cancer
- ALK (D5F3) and ROS1 (SP384) in Lung Cancer - Guides, tips and practical cases
- Do we learn PD-L1 (SP263) in Lung Cancer? - Guides, tips and practical cases.

Asynchronic workshops:

- Pathology and Oncology
  - Interpretation of the VENTANA pan-TRK essay (EPR17341) - digital case review
  - II Update Day on Pathological Anatomy - Breast Cancer Diagnosis (goes on TNBC)
  - NTRK mergers: Algorithm testing
  - NTRK mergers: Biology and testing methodology
  - Comprehensive prevention of cervical cancer
  - Update session on massive sequencing: application in clinical practice
  - Precision Medicine Conference: a possible challenge
- Digital solutions and diagnostic support
  - Workshop LABCLIN2020 - From integration to data analysis: the digitalization of the clinical laboratory

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Finally, he also attends regular meetings with the AI researchers from the UGR, UiS and TY to discuss about their work, problems or present new papers that are relevant in the field of study as well as regular meetings with the pathologists from SUH to discuss about issues related to TNBC annotation.

ESR7 (UPV): Laëtitia Launet

In November 2020, Laëtitia attended introduction webinars about entrepreneurship for predoctoral researchers, organized by RUVID, the Valencian Universities Network for the support of Research, Development and Innovation. These trainings included:

- Entrepreneurial mindset and skills
- Introduction to entrepreneurship tools: creating a business model
- Lean Startup
- Effective communication for entrepreneurs: elevator pitch

On the 23rd of February 2021, ESR7 took part in the online seminar “MATLAB and Python: are they connected?” This webinar was about integrating together developments from MATLAB and Python, allowing to make the most of the advantages of both languages.

Additionally, Laëtitia is currently taking four courses as part of the doctoral programme she is enrolled into at the UPV. Each of these courses represents 20 hours of training, spread over the course of 2 months, from February to April 2021. They are the following:

- Numerical methods with Matlab
- Computer tools for research: scientific computing
- Statistics and mathematical methods for research
- Entrepreneurship and creation of start-ups

Besides, as part of her virtual secondment at ROCHE Diagnostics S.L. in March 2021, ESR7 will participate in different workshops organized by ROCHE. These conferences will involve diverse topics related to cancer, including the following:

Synchronic workshops:

- New Tools for the Diagnosis of Breast Cancer
- ALK (D5F3) and ROS1 (SP384) in Lung Cancer - Guides, tips and practical cases
- Do we learn PD-L1 (SP263) in Lung Cancer? - Guides, tips and practical cases.

Asynchronic workshops:

- Pathology and Oncology
  - Interpretation of the VENTANA pan-TRK essay (EPR17341) - digital case review
  - II Update Day on Pathological Anatomy - Breast Cancer Diagnosis (goes on TNBC)
  - NTRK mergers: Algorithm testing
  - NTRK mergers: Biology and testing methodology
  - Comprehensive prevention of cervical cancer
  - Update session on massive sequencing: application in clinical practice

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    - Precision Medicine Conference: a possible challenge
- Digital solutions and diagnostic support
    - Workshop LABCLIN2020 - From integration to data analysis: the digitalization of the clinical laboratory

Finally, she also attends regular meetings with the AI researchers from the UGR, UiS and TY to discuss about their work, problems or present new papers that are relevant in the field of study as well as regular meetings with the pathologists from INCLIVA to discuss about issues related to spitzoid lesion annotation.

ESR8 (UGR): Arne Schmidt

The local fellow-tailored training courses at the UGR are composed by several components to cover different aspects of the multidisciplinary research areas. The theoretical foundations of the mathematical problem formulation: crowdsourcing, probabilistic deep learning and weakly supervised learning are taught and discussed in weekly seminars of the local research group and collaborating researchers from other institutions.

As Gaussian processes are one important methodological part of the ESR-8 position, additional weakly seminars are held to present current approaches which utilize Gaussian processes in theory and practice.

To build up knowledge on medical images, ESR-8 participates in two bi-weekly meeting series on the creation of skin cancer datasets with pathologists and AI researchers from the UGR, UPV and INCLIVA. In collaboration with other members of the research group, ESR-8 is introduced into existing multidisciplinary projects connecting AI with medicine, such as colour deconvolution of whole slide images. As a preparation of the secondment at the UiS, a biweekly meeting is being held to broaden the knowledge about the preprocessing of whole slide images and the application of AI for the diagnosis of bladder cancer.

ESR8 will also enrol in methodological courses that will complement his formation such as: Scientific information retrieval and handling, Workshop on writing a scientific article, Advanced LaTeX course, just to mention a few.

ESR9 (TY): Zahra Tabatabaei

After her enrolment at the Doctoral Program in Technologies for Health and Well-being of the UPV, ESR9 will choose among the cross-curricular training courses offered by the Doctoral School.

- 40000. Scientific communication: High standard methods for scientific production and communication
- 40001. Scientific documentation
- 40002. Scientific dissemination strategies for researchers
- 40003. Ethics in research
- 40004. Research career
- 40005. Protection of research results: Industrial and intellectual property and other protection systems.
- 40006. Transfer of knowledge
- 40007. Research methodologies
- 40008. Qualitative research methodologies in social sciences and humanities

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- 40009. Statistics and mathematical methods for research: Introduction to statistical techniques for research
- 40010. Numerical Methods with MATLAB
- 40011. Computer tools for research: composition of high-quality documents and presentations with LATEX
- 40012. Computer tools for research: Scientific computing
- 40013. Entrepreneurship and creation of Startups
- 40014. Applied Research Methodology
- 40015. Re-writing science. How to avoid mistakes in written and spoken scientific English
- 40016. Gender Perspective in Research
- 40017. Scientific Image
- 40018. Applied Network Analysis: Science Map Visualization
- 40019. Doctoral Training at the UPV

Each on-line course is equivalent to 20 hours of class, except for 40014-Applied Research Methodology which is equivalent to 60 hours. The doctoral student will have to obtain a minimum of 60 equivalent hours in cross curricular training courses.

Finally, she will also attend regular meetings with the AI researchers from the UGR, UiS and UPV to discuss about their work, problems or present new papers that are relevant in the field of study.

ESR10 (EMC): Farbod Khoraminia

ESR10 will mainly focus on improving diagnosis of HR-NMIBC by digital pathology. Therefore, focus on more specific training will be provided on in-depth knowledge of bladder cancer pathology, image analysis, annotation tools and deep learning. Below, a list of courses that ESR10 will attend to achieve these goals.

- Local course and training by the EMC uropathologist
- Participate in bladder cancer clinical meetings
- Course on digital image analysis
- Neural networks and deep learning
- Improving deep neural networks
- Structuring machine learning projects
- Convolutional neural networks
- Sequence models
- Machine learning using python

ESR11 (SUH): Umay Kiraz

ESR11 joined CLARIFY network at the beginning of Jan-2021. There are no special training courses she attended, yet. She is planning to attend courses with molecular pathology and statistics.

ESR12 (INCLIVA): Andrés Mosquera

ESR12 participates/will participate in the following training courses:

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- Hospital Clínico Universitario de Valencia

Daily training in dermatopathology:

Daily reading of dermatopathology slides at the "Hospital Clinico Universitario de Valencia" and revision of each case with an expert for learning, feedback and clarification of doubts.

Weekly surgical pathology meetings:

Meeting with surgical pathology lectures guided by an expert followed by a time for discussion about the "the case of the week" that consist in difficult case in order to learn not to frequent pathologies.

- Roche Diagnostics (as part of his virtual secondment at RD in Mar-2021)

Synchronic workshops:

- New Tools for the Diagnosis of Breast Cancer
- ALK (D5F3) and ROS1 (SP384) in Lung Cancer - Guides, tips and practical cases
- Do we learn PD-L1 (SP263) in Lung Cancer? - Guides, tips and practical cases.

Asynchronic workshops:

- Pathology and Oncology
  - Interpretation of the VENTANA pan-TRK essay (EPR17341) - digital case review
  - II Update Day on Pathological Anatomy - Breast Cancer Diagnosis (goes on TNBC)
  - NTRK mergers: Algorithm testing
  - NTRK mergers: Biology and testing methodology
  - Comprehensive prevention of cervical cancer
  - Update session on massive sequencing: application in clinical practice
  - Precision Medicine Conference: a possible challenge
- Digital solutions and diagnostic support
  - Workshop LABCLIN2020 - From integration to data analysis: the digitalization of the clinical laboratory

3.2 Network-wide training events, conferences and activities

CLARIFY aims to provide ESRs with the opportunity to gather and share the knowledge within and outside the network, to receive highly targeted training, and to compare different approaches to research problems. Interactions at these events will help them to exchange knowledge among themselves, with the supervisors, trainers and external participants from different sectors. The networking training programme has been conceived to assure that ESRs get maximum advantage of the activities programmed as a support for their IRPs.

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3.2.1 On-line networking training

The aim of this training is to provide support and background to the ESRs to define and develop their CDPs at critical development moments. On-line training is structured around **Virtual Fieldtrips (VF)**. Moreover, all ESRs will hold a series of programmed online interactive meetings with scientists both inside and outside CLARIFY project to provide insights on technical aspects or about their careers.

The first VF took place immediately after most ESRs recruitment finished, which was in 2021, Jan, 26th. Even the ESRs that still had pending their contract signature participated in the event. It was hosted by UPV and the ZOOM tool was used for the videoconference. UPV bought a pro license of this tool and will use it all during the project. It's a secure site with excellent conditions and stability and allows the participation of all CLARIFY members.

In this first virtual fieldtrip, each CLARIFY's main supervisor presented to ESRs the main aspects of their research to provide an overview of the disciplines and expertise of the consortium members. In addition, it allowed the supervisors to know the ESRs from other institutions. Thus, it let everybody be familiar with the CLARIFY members and what they were going to do and can provide to the project.

The agenda and the minutes of this first VF are attached as annexes.

3.2.2 On-site networking training

CLARIFY's on-site training was organised to take place after each project's Annual Progress Meeting. The training programme has been customised to assure that each year ESR receives precisely the contents that will be relevant for the development of their next IRPs period.

Networking events have been arranged as **Training schools** that will last 2-4 days and consist on a set of mandatory technical and transferable skills activities, including a set of:

1) Technical lectures around selected topics
2) Workshops and seminars to cover relevant transferable skills issues.

Training will be given by consortium members and invited speakers; Master classes by External Advisory Board members and relevant researchers from Academia and the corporate world will also be included. All training schools will be open to participants outside CLARIFY network to improve the project's impact, receive additional feedback from researchers working in the field and to widen ESRs' network. To encourage the assistance of external researchers and PhD students, training schools will have a budget to grant the accommodation and/or subsistence expenses of some external assistants. At the end of each Training School, ESRs will make an oral presentation to the rest of the attendees to show their challenges and progress. PhD students outside CLARIFY project will be invited to present also brief communications related with the school contents.

First training school will take place in April 2021 and it will be described in deliverable D5.6 Report on network-wide training events (v2). Unfortunately, due to covid-19 restrictions, it will be a remote event. The event will be properly announced in CLARIFY Social Media.

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3.2.3 Conferences & Workshops

During these few months since the ESRs enrolled in the different Parties, attending to conferences has not been a priority goal. Main efforts have been focused in defining the Career Development Plan of each ESRs. Nevertheless, some of the ESRs attended some conferences and workshops during the first months of the project.

- **19th International Semantic Web Conference (ISWC2020)**

ESR1 has attended the 19th International Semantic Web Conference (ISWC2020). ISWC is the premier international forum, for the Semantic Web / Linked Data Community. ISWC2020 brought together researchers, practitioners and industry specialists to discuss, advance, and shape the future of semantic technologies. More information at https://iswc2020.semanticweb.org/

The program of the event is attached as Annex 3.

- **1st IEEE services workshop on data-centric workflows on heterogeneous infrastructures: challenges and directions (DAWHI2020)**

ESR2 has attended at the 1st IEEE services workshop on data-centric workflows on heterogeneous infrastructures: challenges and directions (DAWHI2020). The workshop aims to establish a platform for researchers from service computing, scientific workflow management, cloud computing, big data, and relevant communities to exchange the latest experience and research ideas on data-centric applications across heterogeneous infrastructures. More information at https://conferences.computer.org/services/2020/workshops/dawhi2020.html.

The program of the event is attached as Annex 4.

- **IEEE EMBS Grand Challenge Forum on Data Science and Engineering in Healthcare**

From the 10th to the 13th of February 2021, Claudio Fernandez and Laëtitia Launet, respectively ESR6 and ESR7 at the UPV, participated in the IEEE EMBS Grand Challenge Forum on Data Science and Engineering in Healthcare (https://grand-challenges.embs.org/2021datascience/), where they attended different webinars about innovations in the area. The presentations included the following, among others:

  - "Integrating engineering and medicine to address big challenges"
  - "AI in Medical Imaging"
  - "Digital Doctors: The Future of Medicine"
  - "Recent Advances for AI in Digital Health"

The program of the event is attached as Annex 5.

- **Bridge meeting on Molecular and Digital Pathology**

On 11-Feb-2021, ESR10 attended the Bridge meeting on Molecular and Digital Pathology with the aim of diving deeper into disease pathology. Complete info available in http://www.global-engage.com/event/bridge-digital-molecular-pathology/.

The program of the event is attached as Annex 6.

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- **XLIV Annual Meeting SEAP-IAP 2021**

From the 4th to the 5th of February 2021, ESR12 attended the XLIV Annual Meeting of the Sociedad Española de Anatomía Patológica, the Spanish Division of the International Academy of Pathology.

The program of the event is attached as Annex 7.

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5 Annexes

Annex 1: Agenda of the first Virtual Fieldtrip.

Annex 2: Minutes of the first Virtual Fieldtrip.

Annex 3: Program of the 19th International Semantic Web Conference (ISWC2020), November 1-6, 2020

Annex 4: Program of the 1st IEEE services workshop on data-centric workflows on heterogeneous infrastructures: challenges and directions (DAWHI2020), Sat 24 Oct, 2020

Annex 5: Program of the IEEE EMBS Grand Challenge Forum on Data Science and Engineering in Healthcare

Annex 6: Program of the Bridge meeting on Molecular and Digital Pathology.

Annex 7: Program of the XLIV Annual Meeting SEAP-IAP 2021

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Annex 1: Agenda of the first Virtual Fieldtrip

CLARIFY VF1 TUE 26-Jan-2021			
Time	**Slot**	**Topic**	**Led by**
10:30	0:05	Welcome to the event	UPV (Valery)
10:35	0:10	Partners' expertise presentation: UPV	UPV (Valery)
10:45	0:20	Partners' expertise presentation: UiS	UiS (Kjersti/Chunming)
11:05	0:10	Partners' expertise presentation: UvA	UvA (Zhiming)
11:15	0:10	Partners' expertise presentation: UGR	UGR (Rafa)
11:25	0:10	Partners' expertise presentation: INCLIVA	INCLIVA (Carlos)
11:35	0:10	Partners' expertise presentation: SUH	SUH (Emiel)
11:45	0:10	Partners' expertise presentation: EMC	EMC (Tahlita)
11:55	0:10	Partners' expertise presentation: bY	bY (Russel)
12:05	0:10	Partners' expertise presentation: TY	TY (Javier)
12:15	0:05	ESR introduction: ESR1	UvA (Na)
12:20	0:05	ESR introduction: ESR2	UvA (Yuandou)
12:25	0:05	ESR introduction: ESR3	bY (Jiahui)
12:30	0:05	ESR introduction: ESR4	UiS (Neel)
12:35	0:05	ESR introduction: ESR5	UiS (Saul)
12:40	0:05	ESR introduction: ESR6	UPV (Claudio)
12:45	0:05	ESR introduction: ESR7	UPV (Laëtitia)
12:50	0:05	ESR introduction: ESR8	UGR (Arne)
12:55	0:05	ESR introduction: ESR9	TY (Zahra)
13:00	0:05	ESR introduction: ESR10	EMC (Farbod)
13:05	0:05	ESR introduction: ESR11	SUH (Umay)
13:10	0:05	ESR introduction: ESR12	INCLIVA (Andrés)
13:15	0:05	Meeting close	UPV (Valery)

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Annex 2: Minutes of the first Virtual Fieldtrip

Minutes of First Virtual Fieldtrip

26-Jan-2021

Project	**CLARIFY – Cloud ARtificial Intelligence For pathologY**
Grant Agreement ID:	**860627**
Consortium coordinator:	**UNIVERSITAT POLITECNICA DE VALENCIA**
Start and end date:	**1 November 2019 - 31 October 2023**
Funded under:	**H2020-EU.1.3.1.**
Date of issue:	**27-Jan-2021**

CHANGE REGISTER

Version	Date	Author	Organisation	Changes
A_DRAFT1	27-Jan-2021	Sandra Morales	UPV	A_DRAFT circulated for comment
A	02-Feb-2021	Sandra Morales	UPV	Final version

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MINUTES OF VF1

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MINUTES OF VF1

1 Attendees

	Consortium Member	Short Name	Participant
1	Universitat Politècnica de València	UPV	Valery Naranjo Sandra Morales Adrián Colomer Julio Silva Laëtitia Launet Claudio Fernández
2	University of Stavanger	UiS	Kjersti Engan Chunming Rong Trygve Effestol Saul Fuster Neel Kanwal
3	Universiteit Van Amsterdam	UvA	Zhiming Zhao Na Li Yuandou Wang
4	Universidad de Granada	UGR	Rafael Molina Javier Mateos Arne Schmidt
5	Fundación para La Investigación del Hospital Clínico de la Comunitat Valenciana	INCLIVA	Carlos Monteagudo Andrés Mosquera
6	Helse Stavanger HF	SUH	Emiel Janssen Umay Kiraz
7	Erasmus Medisch Centrum Rotterdam	EMC	Tahlita Zuiverloon Christiaan de Jong Farbod Khoraminia
8	bitYoga AS	bY	Russel Wolff Jiahui Geng
9	Tyris Software S.L.	TY	Javier Oliver Zahra Tabatabaei
10	Universitat de València	UVEG	
11	Lynkeus S.r.l.	LYN	
12	Roche Diagnostics, S.L.U.	RD	

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MINUTES OF VF1

2 Agenda

- Welcome to the event.
- CLARIFY partner's expertise presentation
- CLARIFY ESR's introduction

NB Order of contributions may be changed to simply reporting.

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3 Minutes

Slides used in the meeting are available from the project website: Home / Meetings / Training / Virtual Fieldtrips / 20210126 – VF1.

Introduction; VN

- Aim of the event:
  - Introduction to CLARIFY's partners' expertise and disciplines.
  - Introduction of ESRs

CLARIFY partner's expertise

UPV; VO

- Introduction of UPV, CVBLab group and Valery Naranjo as project coordinator and main supervisor of ESR6 and ESR7 as well as Adrián Colomer, Julio Silva and Sandra Morales as co-supervisors.
- Expertise in the use of artificial intelligence (AI) on histology-based and medical-image-based projects in addition to others more industry-focused.

UiS; KE, CR

- Introduction of UiS, BMDLab group, Data-centered and Secure Computing group and Kjersti Engan and Chunming Rong as main supervisors of ESR4 and ESR5 as well as Trygve Effestol as co-supervisor.
- Expertise in signal/image processing, pattern recognition and machine learning. Focus on biomedical and medical applications.
- Expertise in real-world solutions using computing technologies (cloud, blockchain, etc) in different domains

UvA; ZZ

- Introduction of UvA, QCDIS group and Zhiming Zhao as main supervisor of ESR1 and ESR2.
- Expertise in cloud computing and software defined infrastructure, big data management and decentralized applications.

UGR; RM

- Introduction of UGR, Rafael Molina as main supervisor of ESR8 and his research group.

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- Expertise in research areas related to CLARIFY: color deconvolution and deep and shallow classifiers of histological images as well as in crowdsourcing.

INCLIVA; CM

- Introduction of INCLIVA, UVEG, Skin Cancer Research group and Carlos Monteagudo as main supervisor of ESR12.
- Expertise in dermatopathology and Spitzoid melanocytic tumor diagnosis.
- Introduction of the challenge of ambiguous Spitzoid tumor diagnosis.

SUH; EJ

- Introduction of SUH, Research group department of pathology and Emiel Janssen as main supervisor of ESR11.
- Expertise in image analysis in routine pathology as well as digital pathology. Projects in breast cancer, bladder cancer and skin lesions among others.
- WSI databases available for CLARIFY: TNBC, NMIBC and spitzoid lesions.

EMC; TZ

- Introduction of EMC, EUCRG and Tahlita Zuiverloon as main supervisor of ESR10 as well as Christiaan de Jong as co-supervisor.
- Expertise in mechanisms of BCG resistance.
- Introduction of the challenge of HR-NMIBC diagnosis.

bY; CR on behalf of RW

- Introduction of bY and Russel Wolff as main supervisor of ESR3.
- Expertise in controlled data sharing.

TY; JO

- Introduction of TY and Javier Oliver as main supervisor of ESR9.
- Expertise in machine learning, business intelligence, technological lab and multiscreen video solutions. Focus on AI for industry.

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MINUTES OF VF1

Introduction of ESRs

ESR1; NL

- ESR1 from UvA: Na Li (China) – MS in Electrical Engineering
- Research project: Semantic interoperability of digital pathology data via common formal terminology

ESR2; YW

- ESR2 from UvA: Yuandou Wang (China) – MS in Computer Science
- Research project: Seamless trusted data sharing techniques

ESR3; JG

- ESR3 from bY: Jiahui Geng (China) – MS in Computer Science
- Research project: Taking computation to Data: integrating BigData and Blockchain allowing secure analysis of sensitive health data on-premise

ESR4; NK

- ESR4 from UiS: Neel Kanwal (Pakistan) - MS in Computer Networks Engineering
- Research project: Preprocessing, segmentation and anonymization of WSI

ESR5; SF

- ESR5 from UiS: Saul Fuster (Spain) – MS in Telecommunications Engineering
- Research project: Extracting diagnostic and prognostic information from histological images of NMBC

ESR6; CF

- ESR6 from UPV: Claudio Fernández (Spain) - Telecommunications Services and Technologies Engineer, MS in Human Computer Interaction
- Research project: Significant feature extraction from WSI for diagnosis and prognosis of TNBC

ESR7; LL

- ESR7 from UPV: Laëtitia Launet (France) – MS in Engineering (Major in Information Systems and Data Science)
- Research project: Deep learning for spitzoid melanocytic lesion (SML) characterization

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ESR8; AS

- ESR8 from UGR: Arne Schmidt (Germany) – MS in Mathematics
- Research project: Probabilistic large scale crowdsourcing methods for histological image classification

ESR9; ZT

- ESR9 from TY: Zahra Tabatabaei (Iran) – MS in Electrical Engineering
- Research project: Strategies for cloud-based histological image retrieval

ESR10; FK

- ESR10 from EMC: Farbod Khoraminia (Iran) – MS in Biomedical/Medical Engineering
- Research project: Improving HR-NMBC diagnosis and prognosis by digital pathology

ESR11; UK

- ESR11 from SUH: Umay Kiraz (Turkey) - Pathology specialist
- Research project: Evaluation of TNBC for diagnostic and prognostic by digital pathology

ESR12; AM

- ESR12 from INCLIVA: Andrés Mosquera (Colombia) – Anatomic Pathologist
- Research project: Analysis of the implementation of AI algorithms in the evaluation of spitzoid melanocytic tumours for diagnosis and prognosis

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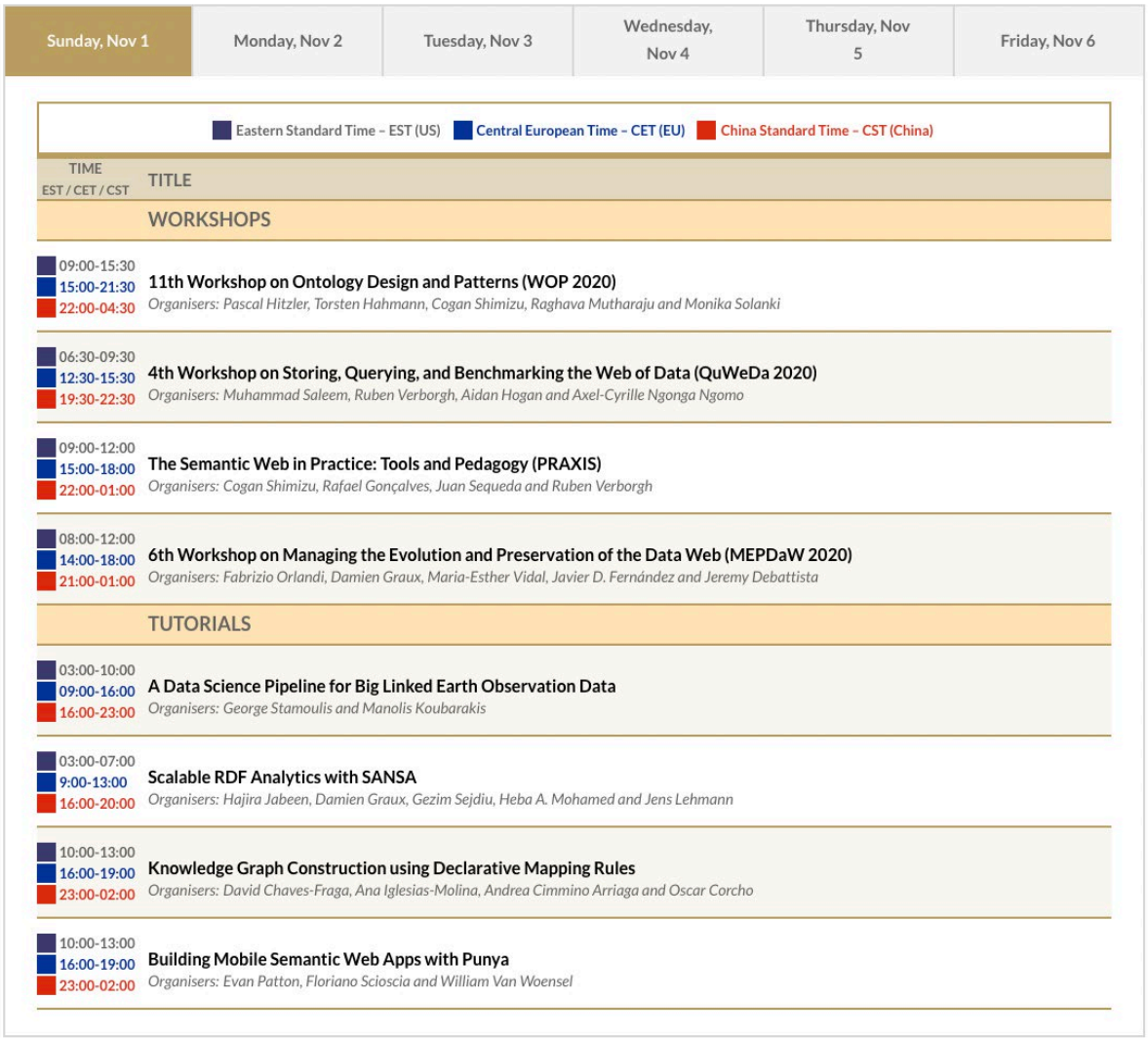
Annex 3: Program of the 19th International Semantic Web Conference (ISWC2020)



Sunday, Nov 1 | Monday, Nov 2 | Tuesday, Nov 3 | Wednesday, Nov 4 | Thursday, Nov 5 | Friday, Nov 6

Eastern Standard Time – EST (US) | Central European Time – CET (EU) | China Standard Time – CST (China)

TIME EST / CET / CST	TITLE
	WORKSHOPS
09:00-15:30 15:00-21:30 22:00-04:30	**11th Workshop on Ontology Design and Patterns (WOP 2020)** *Organisers: Pascal Hitzler, Torsten Hahmann, Cogan Shimizu, Raghava Mutharaju and Monika Solanki*
06:30-09:30 12:30-15:30 19:30-22:30	**4th Workshop on Storing, Querying, and Benchmarking the Web of Data (QuWeDa 2020)** *Organisers: Muhammad Saleem, Ruben Verborgh, Aidan Hogan and Axel-Cyrille Ngonga Ngomo*
09:00-12:00 15:00-18:00 22:00-01:00	**The Semantic Web in Practice: Tools and Pedagogy (PRAXIS)** *Organisers: Cogan Shimizu, Rafael Gonçalves, Juan Sequeda and Ruben Verborgh*
08:00-12:00 14:00-18:00 21:00-01:00	**6th Workshop on Managing the Evolution and Preservation of the Data Web (MEPDaW 2020)** *Organisers: Fabrizio Orlandi, Damien Graux, Maria-Esther Vidal, Javier D. Fernández and Jeremy Debattista*
	TUTORIALS
03:00-10:00 09:00-16:00 16:00-23:00	**A Data Science Pipeline for Big Linked Earth Observation Data** *Organisers: George Stamoulis and Manolis Koubarakis*
03:00-07:00 9:00-13:00 16:00-20:00	**Scalable RDF Analytics with SANSA** *Organisers: Hajira Jabeen, Damien Graux, Gezim Sejdiu, Heba A. Mohamed and Jens Lehmann*
10:00-13:00 16:00-19:00 23:00-02:00	**Knowledge Graph Construction using Declarative Mapping Rules** *Organisers: David Chaves-Fraga, Ana Iglesias-Molina, Andrea Cimmino Arriaga and Oscar Corcho*
10:00-13:00 16:00-19:00 23:00-02:00	**Building Mobile Semantic Web Apps with Punya** *Organisers: Evan Patton, Floriano Scioscia and William Van Woensel*

Note: this section only shows a portion of the ISWC 2020 program as the whole conference program is lengthy.

For detailed program, please visit: https://iswc2020.semanticweb.org/program/conference/

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Annex 4: Program of the 1st IEEE services workshop on data-centric workflows on heterogeneous infrastructures: challenges and directions (DAWHI2020)

THE 1ST IEEE SERVICES WORKSHOP ON DATA-CENTRIC WORKFLOWS ON HETEROGENEOUS INFRASTRUCTURES: CHALLENGES AND DIRECTIONS (DAWHI) AND 8TH IEEE SERVICES WORKSHOP ON SOFTWARE ENGINEERING FOR/IN THE CLOUD - TECHNICAL PROGRAM

Date/Time (UTC)	Session	Presentation
Sat 10/24 07:00 - 08:20 China time: 15:00 - 16:20	WHI/FIN 1 Session Chair: Shiyong Lu, Wayne State University and Rami Bahsoon, The University of Birmingham	FIN_WSS_42 Education Model for Developing IoT and Cloud Mobile Applications Adriana Collaguazo, Mónica Villavicencio and Alain Abran
		WHI_WSS_8 Reproducing Scientific Experiment with Cloud DevOps Feng Zhao, Xingzhi Niu, Shao-Lun Huang and Lin Zhang
		WHI_WSS_48 Decentralized workflow management on software defined infrastructures Yuandou Wang and Zhiming Zhao

Note: ESR2's presentation at the DAWHI 2020 (WHI_WSS_48).

European Commission

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Annex 5: Program of the IEEE EMBS Grand Challenge Forum on Data Science and Engineering in Healthcare

PROGRAM AT-A-GLANCE

WEDNESDAY, FEBRUARY 10, 2021

9:45 – 10:00 am EST
OPENING REMARKS

10:00 am – 2:00 pm EST
SYMPOSIUM #1 | Medical Imaging

Moderators | Andrew Laine & Amir Amini

- Roderic Pettigrew, Ph.D., M.D. | *"Integrating Engineering and Medicine to Address Big Challenges"*
- Michael I. Miller, Ph.D. | *"Brain Imaging and Mapping"*
- Cynthia Rudin, Ph.D. | *"Stop Explaining Black Box Machine Learning Models for High Stakes Decisions and Use Interpretable Models Instead"*
- Muyinatu Bell, Ph.D. | *"Ultrasound Image Formation in the Deep Learning Age"*
- Laura Waller, PhD. | *"End-to-end learning for computational microscopy"*
- Marco Lorenzi, Ph.D. | *"Biomedical Data Integration in Neurodegenerative Disorders: Towards In-silico Simulation of Intervention Trials"*
- Hayit Greenspan, Ph.D. | *"AI in Medical Imaging"*
- Eric A. Hoffman, Ph.D. | *"Structural and Functional Lung Phenotyping via Multi-spectral CT"*
- Kristy K Brock, Ph.D., DABR, FAAPM | *"Challenges and Opportunities in the Clinical Translation of AI for Image Guided Cancer Therapy"*

THURSDAY, FEBRUARY 11, 2021

10:00 am – 2:30 pm EST
SYMPOSIUM #2 | Precision Medicine

Moderators | Colin Brenan & Ali Tinazli

- Raimond L. Winslow Ph.D. | *"Predictive Analytics in Critical Care Medicine"*
- Craig Cummings, Ph.D. | *"Driving Personalized Oncology Through Advanced Analysis of Genomic, Cellular and Image-based Biomarker Data From Large Clinical Trial Cohorts"*
- Kamala K. Maddali, DVM, Ph.D. | *"Precision Medicine in Cancer: Technology Barriers and Breakthroughs to Better Serve Community Cancer Patients"*
- George Em Karniadakis, Ph.D. | *"Deep Transfer Learning and Data Augmentation Improve Glucose Levels Prediction in Type 2 Diabetes Patients"*
- Erin Shellman, Ph.D. | *"Data Science in Synthetic Biology"*
- Thomas Wilckens, M.D. | *"Precision Medicine – a Data Hungry Paradigm Shift"*
- Jadwiga Bienkowska, Ph.D. | *"Leverage Data Science and Unravel Molecular Mechanisms of Disease, Advance New Therapies and Deliver Precision Medicine to Patients"*
- Curtis C. Harris, Ph.D. | *"Precision Medicine of Lung Cancer"*
- Anita Rogacs, Ph.D. | *"Microfluidics, MEMS and Nanotechnology in Precision Medicine"*

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FRIDAY, FEBRUARY 12, 2021

10:00 am – 2:00 pm EST
SYMPOSIUM #3 | Digital Healthcare

Moderators | Paolo Bonato & Jeff Palmer

- Dina Demner Fushman, M.D., Ph.D. | *"Transforming Data into Information for Clinical Decision Support"*
- Derek O'keeffe, MD, Ph.D. | *"Digital Doctors: The Future of Medicine"*
- Deborah Estrin Ph.D. | *"From Patient Generated Data to Digital Biomarkers and Therapeutics"*
- Wendy Nilsen, Ph.D. | *"Challenges in Digital Healthcare: On the Cusp of Transformation"*
- Tom Quatieri, Ph.D. | *"Vocal Biomarkers of Neurological Conditions Based on Motor Timing and Coordination"*
- David Clifton, DPhil (Oxon) | *"Recent Advances for AI in Digital Health"*
- Bjoern Eskofier, Ph.D. | *"Germany's New Digital Healthcare Act – Paving the Way through the Valley of Innovation Death"*
- Julien Penders, M.Sc. | *"From Concept to Market: How Startups Help Putting Digital Health Innovations into People's Hands"*
- Lucila Ohno-Machado, M.D., MBA, Ph.D. | *" Data Science Challenges: Building AI Models while Protecting Privacy"*

SATURDAY, FEBRUARY 13, 2021

10:00 am – 2:00 pm EST
SYMPOSIUM #4 | Brain and Neural System

Moderators | Erika Ross & Metin Akay

- Emery N. Brown, MD, Ph.D. | *"Challenges in Data Science and Engineering in Brain and Neural Systems*
- Paul Sajda, Ph.D. | *"Machine Learning for Fusing Simultaneously Acquired EEG-fMRI"*
- Aldo Faisal, Ph.D. | *"Ethomics: Restoring, Augmenting and Understanding the Brain's Function through Behaviour"*
- Sridevi V. Sarma, Ph.D. | *"Localizing the Epileptogenic Zone in Epilepsy Patients from Resting State EEG"*
- Andreas Savas Tolias, Ph.D. | *"A Less Artificial Intelligence"*
- *Gabriel A. Silva, Ph.D.* | *"Machine Learning in Neuroscience: Graph Neural Network Based Discovery of Generalizable Models"*
- Maryam Shanechi, Ph.D. | *"Dynamical Modeling and Decoding of Multiscale Brain Networks and Application to Brain-machine Interfaces"*
- Theo Zanos | *"Using Data Science to Address Challenges in Bioelectronic Medicine"*
- Mengjia Xu, Ph.D. | *"A New Stochastic Graph Embedding Method for Alzheimer's Disease Early-stage Prediction and Intervention Evaluation"*

2:00 pm EST
CLOSING REMARKS

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Annex 6: Program of the Bridge meeting on Molecular and Digital Pathology

BRIDGE DIGITAL AND MOLECULAR PATHOLOGY

Next Generation Profiling for Enhanced Molecular Pathology

11 February 2021 / 60 Minutes

Moderator

HARIS TZOUVALI

Regional Marketing Manager for Europe, Middle East and Africa, 10x Genomics

Dive deeper into disease pathology with 10x Genomics Visium Spatial Products, which allow you to understand your tissue sample like never before. Profile spatial gene expression alongside histological analysis of H&E stained sections to examine tissue anatomy or immunofluorescence for protein detection. Map the whole transcriptome with morphological context or focus on your genes of interest using targeted gene expression panels—choose from pre-designed panels or design your own—to make novel discoveries in normal development, disease pathology, and clinical translational research.

Live Webcast Time: **New York 10:00, London 15:00, Paris 16:00, Singapore 23:00, Tokyo 00:00 (12th Feb), Sydney 02:00 (12th Feb)**

Duration: **60 minutes**

Event Structure: **45 minutes panel discussion & 15 minutes Q&A**

Registration Fee: **Complimentary access to all delegations**

www.global-engage.com/event/bridge-digital-molecular-pathology

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BRIDGE DIGITAL AND MOLECULAR PATHOLOGY

Next Generation Profiling for Enhanced Molecular Pathology

11 February 2021 / 60 Minutes

Presenter

FLORIAN BAUMGARTNER

Senior Product Manager, Visium Spatial Informatics, 10x Genomics

Florian Baumgartner has been at the forefront in Spatial Transcriptomics' Research and Development, paving the way for the company's first commercial product launch in 2016. Since Spatial Transcriptomics' acquisition by 10x Genomics in 2018, Florian has been involved in developing the Visium Spatial Gene Expression Solution, while serving as Senior Product Manager for Visium Spatial Informatics.

www.global-engage.com/event/bridge-digital-molecular-pathology

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Annex 7: Program of the XLIV Annual Meeting SEAP-IAP 2021

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SEAP-IAP [Sociedad Española de Anatomía Patológica] [International Academy of Pathology]

XLIV REUNIÓN ANUAL SEAP-IAP

4 Y 5 DE FEBRERO DE 2021

Edición Online

JUEVES, 4 DE FEBRERO

Sesión tumores de Partes Blandas: Aspectos que todos deberíamos conocer.

10:00-10:15: **Introducción:** Dra. Cleofé Romagosa.

10:15-10:30: **Caso 1:** Julia Sanz.
Hospital Clínico Universitario. Salamanca.

10:30-10:45: **Caso 2:** Elena Prados.
Hospital Son Espases. Palma de Mallorca.

10-45-11:00: **Caso 3:** Rocío Irene Bermúdez.
Hospital Miguel Servet de Zaragoza.

11:00-11:15: **Caso 4:** Gema Moreno.
Hospital la Fe. Valencia.

11:15-11:30: **Caso 5:** Eva Chenu.
Hospital de Sant Pau. Barcelona.

11:30-11:45: **Discusión.**

11:45-12:15: **Descanso.**

12:15-12:30: **Caso 6:** Jaqueline Edith Apaza Chávez.
Hospital Gregorio Marañón de Madrid.

12:30-12:45: **Caso 7:** Mario Berrios Hernández.
Hospital CHU de Santiago de Compostela.

12:45-13:00: **Caso 8:** Alejandro Salazar.
Hospital Virgen de la Arrixaca de Murcia.

13:00-13:15: **Caso 9:** Lourdes Naranjo.
Hospital Vall d'Hebron de Barcelona.

13:15-13:30: **Caso 10:** José Manuel Masero Carretero.
Hospital Virgen del Rocío de Sevilla.

13:30-14:00: **Discusión.**

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XLIV REUNIÓN ANUAL SEAP-IAP

4 Y 5 DE FEBRERO DE 2021

Edición Online

JUEVES, 4 DE FEBRERO

Sesión de Avances en Oncopatología. Homenaje Prof. Hugo Galera

16:00 - 20:00 h.

- Presentación y semblanza profesional del Prof. Galera. Dr. Ricardo Glez. Cámpora. Universidad de Sevilla.
- Gineocopatología. Dr. Jaime Prat. Universidad Autónoma de Barcelona.
- Mama. Dr. José Palacios. Hospital Universitario Ramón y Cajal. Madrid.
- Uropatología. Dr. Antonio López Beltrán. Universidad de Córdoba.
- Pulmón y Mediastino. Dr. Antonio García Escudero. Hospital Universitario Virgen Macarena. Sevilla.
- Hematopatología. Dr. José Luis Villar. Hospital Universitario Virgen Macarena. Sevilla.
- Dermatopatología. Dr. Juan José Ríos Martín. Hospital Universitario Virgen Macarena. Sevilla.
- Endocrino. Dr. J. Manuel Cameselles. C. Hospitalario Universitario. Santiago de Compostela.
- Neuropatología. Dra. Cristina Carrato y Dr. Aurelio Ariza. Hospital Germans Trias i Pujol. Barcelona.
- Citopatología. Dr. Enrique Lerma. Universidad Autónoma de Barcelona.
- Aparato digestivo. Dra. Ana Vallejo. Hospital Universitario Virgen Macarena. Sevilla.
- Tejidos blandos. Dr. Luis Vicioso. Hospital Universitario Virgen de la Victoria. Málaga.
- Cierre y comentarios personales. Dr. Alfredo Matilla Vicente. Universidad de Málaga.

VIERNES, 5 DE FEBRERO

CURSO LARGO: ACTUALIZACIÓN EN PATOLOGÍA DIGESTIVA

08.30 - 08.40 h.	**Welcome / Bienvenida.** Dra. Miriam Cuatrecasas. H. Clinic. Barcelona.
08.40 - 09.30 h.	**Hot topics in pancreatic pathology.** Dr. Volkan Adsay. University Hospital Istanbul,.
09.30 - 10.15 h.	**Who changes in hepatobiliary pathology.** Dra. Teresa Serrano. Hospital Universitario Bellvitge. Barcelona..
10.15 - 11.00 h.	**Pancreatobiliary molecular classification.** Dr. Volkan Adsay. University Hospital Istanbul,.

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4 Y 5 DE FEBRERO DE 2021

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CURSO LARGO: ACTUALIZACIÓN EN PATOLOGÍA DIGESTIVA

11.00 - 11.30 h.	**Descanso.**
11.30 - 12.15 h.	**Update guidelines on hereditary gastric cancer.** Dra. Fátima Carneiro. IPATIMUP. Oporto.
12.15 - 13.00 h.	**Poorly differentiated clusters as predictors of response in colorectal carcinoma.** Dr. Isidro Machado. Instituto Valenciano de Oncología. Valencia..
13.00 - 15.00 h.	**Descanso.**
15.00 - 15.45 h.	**WHO changes in gastric pathology.** Dra. Fátima Carneiro. IPATIMUP. Oporto.
15.45 - 16.30 h.	**En busca de una diana terapéutica en el adenocarcinoma colorrectal serrado** Dr. José García Solano. H.G.U. Santa Lucía. Cartagena..
16.30 - 17.00 h.	**Are we ready for molecular staging in colorectal carcinoma?** Dra. Miriam Cuatrecasas. H. Clinic. Barcelona.
17.00 - 17.30 h.	**Descanso.**
17.30 - 18.15 h.	**Gastrointestinal lymphomas - the tricky ones.** Dra. Carolina Ciarpanglini. H. Clínico de Valencia.
18.15 - 18.30 h.	**Closing remarks.** Dra. Miriam Cuatrecasas. H. Clinic. Barcelona.

INFORMACIÓN GENERAL

TODA LA INFORMACIÓN DEL DESARROLLO DEL CURSO EN:

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