



PROJECTS

2 Selected projects
Support for another 10 proposals
New project call prepared



COLLABORATIONS INCUBATOR

Represented UMCG at the NL-AIC
2 meetings of Copenhagen-Groningen-Tartu
Intensified cooperation with the Isala hospital



MACHINE LEARNING LAB

Biweekly meetings
MLL support in the UMCG
Implementation Machine Learning Canvas



NEEDS ASSESSMENT

Organisation brainstorm about the future of AI
Publication and adoption AI vision and
AI roadmap UMCG



COMMUNITY BUILDING

7 (online) DASH Sparkle Events
AI Think Tank meetings



FUNDING OPPORTUNITIES

3 Proposals granted



EDUCATION

4 Online Mini Lectures
Participation minor Data Wise
Set up new Summer School 'Data Science and
AI in Health'
Set up Data Science Learning Path FSE



COMMUNICATION

LinkedIn community of 500+ people
Production of flyers and roll-up banners

PREFACE



In many ways it has been a special year for the Data Science Center in Health (DASH) of the UMCG. Many of our activities normally took place offline. After all, DASH is primarily a community where researchers and support staff in the field of Data Science within the UMCG meet, strengthen and support each other.

In the first weeks of the pandemic, we quickly adapted and went completely online. Our Sparkle Events became well attended webinars and we introduced the online 10-minute lectures. Short, clear videos with an explanation of one topic in the field of Data Science and Artificial intelligence (AI). You can find them on our YouTube channel.

We have also taken a big step in the field of AI by presenting the AI vision and the accompanying AI roadmap. One of the great developments of that AI roadmap is the start of the AI Think Tank. In this AI Think Tank researchers and clinicians collaborate with DASH on the new steps we need to take within the UMCG to get AI to a higher level.

Hopefully we will meet more offline this year, but online will probably never go away for DASH.

Frank Schröer MSc
Program manager / Team lead a.i.

We connect experts in data science, machine learning, and artificial intelligence. We are DASH.

OBJECTIVE

DASH is the Data Science Center in Health of the UMCG. DASH is a knowledge hub, community and facilitator in the area of health data science. DASH aims to advance data science in health by supporting innovative research projects and by bringing experts in data science, machine learning and artificial intelligence together.

2020 was a special year in which everything went slightly different. Partly because of the pandemic, the focus has been on the online visibility of DASH. In this annual report, we briefly review what DASH achieved in 2020.



DASH ACTIVITIES 2020

Below (and on the first page) you find a summary of the activities that DASH organised and participated in, to achieve the objective of advancing data science in health at the UMCG. An extensive list of activities can be found in the Appendix.



PROJECTS DASH

DASH projects are open to UMCG-researchers, working in (pre)clinical UMCG departments, who perform promising research that involves challenges regarding (big or complex) data, research IT or data science. In 2020, a call was published to gather these promising projects from UMCG researchers, resulting in twelve project proposals. Two selected projects received dedicated support; for the other ten proposals connections were made to help them on their way, both done in good cooperation with other departments, such as IM-Onderzoek and the CIT (Center for Information Technology, University of Groningen). In addition, a student project has been started for one of these projects. At the end of 2020, a new project call was prepared and published to select two new DASH projects for 2021.



MACHINE LEARNING LAB

The Machine Learning Lab (MLL) supports scientists within the UMCG on machine learning matters as well as community building within the UMCG. Biweekly MLL meetings were organised, where PhDs, postdocs and staff discuss machine learning topics on a technical level. The MLL is involved in various research projects within and outside the UMCG and has its own dedicated PhD projects. Multiple counseling meetings have been held with different clinicians to help them advance projects in Machine Learning. In 2020, approximately 20 new members joined the Machine Learning Lab. Furthermore, the [Machine Learning Canvas](#) was implemented as an intake for new projects.



EDUCATION DASH

DASH participates in the organisation of educational activities, with the aim of increasing knowledge about data science, AI and machine learning. For example, by providing lectures for the minor Data Wise at the University of Groningen. Since the beginning of 2020, DASH has been giving mini lectures via Youtube, in which various speakers explain a topic in the field of Data Science and Artificial Intelligence. DASH also received a start-up grant from the University of Groningen to set up the new Summer School 'Data Science and AI in Health'. The collaboration with student organisation AiMED has been further expanded with regular meetings and exchange and support in AI-related matters.



- Ondersteuning van zorgprofessionals, onderzoekers, docenten, studenten en private partners met betrekking tot machine learning, data science en AI
- Stimuleren van awareness en vooruitgang in data science en AI binnen het UMCG, lokaal en regionaal



AI THINK TANK

The AI think tank was established in 2020 to provide solicited and unsolicited ideas and advice on the policy and application of AI in research and clinical practice. The members of the think tank represent a cross-section of professionals involved in AI within the UMCG.

- Job Doornberg (chairman) - Orthopaedic Trauma Surgeon
- Christian van der Hilst - Head of Strategic Analytics
- Lilian Peters - Epidemiologist / Assistant Professor
- Inge Holtman - PhD researcher / Assistant Professor
- Rick Pleijhuis - Internal Medicine Resident
- Rudolf Fehrmann - Medical Oncologist / Principal investigator
- Eelco Fennema - Trauma Surgeon
- Gerton Lunter - Professor of Medical Statistics
- AiMED (student organisation)



COLLABORATIONS INCUBATOR DASH

DASH is a collaborations incubator and helps with getting pilot projects started with public and/or private partners. In 2020, DASH represented the UMCG at the NL-AIC (Dutch AI Coalition) and a number of DASH team members became part of various NL-AIC working groups. In addition, a collaboration was started with the University of Groningen and Northern-AIC. Two meetings of Copenhagen-Groningen-Tartu were held, focusing on topics such as Data Science, Machine Learning and Artificial Intelligence. In addition, the cooperation with the Isala hospital has been intensified. In a letter of intent, the future of collaboration at a different level of research into Cohorts and PhD education has been determined.



NEEDS ASSESSMENT DASH

Registers needs, challenges, bottlenecks and other input related to data science, to enable the right solutions and thereby improve the level of research projects in the field of data science, AI and machine learning. An example of an activity in 2020 is, for example, organising a brainstorm about the future of AI to shape the AI vision of the UMCG. Based on input from these and many other meetings, the AI vision and AI roadmap have been published and established.



FUNDING OPPORTUNITIES DASH

Provides advice on funding opportunities and aims to help acquire grants for data science, AI and machine learning projects. In 2020, three projects funds were granted: DHealth Lab (SNN), EIT Health and the project "changes and use of the organization of care in general practice and out-of-hours services: lessons learned from the COVID-19 pandemic (COVID-GP project) of Lilian Peters. In addition, DASH received a starting grant of € 5000 from the University of Groningen for setting up the new Summer School "Data Science and AI in health".



COMMUNICATION DASH

Contributes to various outreach activities, for example publications on TopDutch and in ALTIUS. At the end of 2019, a DASH LinkedIn account was set up to regularly showcase updates on DASH and related activities. In 2020, the number of followers of the DASH LinkedIn account has increased to more than 500. News about relevant events, publications and developments is shared through this channel. Furthermore, recognisable DASH flyers and roll-up banners have been produced in 2020. In addition to these outreach activities, DASH updates are also regularly sent by email to people who have signed up. Preparatory work for the new UMCG research website also took place in 2020.



COMMUNITY BUILDING DASH

We connect the data science, artificial intelligence and machine learning community by, for example, organising Machine Learning Lab and AI Think Tank meetings and monthly DASH Sparkle Events and Webinars. The webinars feature speakers who share their knowledge and experiences in the field of data science in healthcare. The DASH Webinars started in May 2020 and on average there were 70-80 attendees. In addition, DASH provided 4 online mini-lectures on data science, AI and machine learning.

THE DASH TEAM

The different team members work part-time for DASH, as they are also involved at the UMCG in various other roles. With the limited amount of time available, many things were accomplished throughout 2020.

- Frank Schröder – Programme Manager a.i.
- Michiel Hooiveld – Liaison and Policy Officer
- Peter van Ooijen – Machine Learning Lab Coordinator
- Jan Jurjen Uitterdijk – Project Portfolio Manager
- Johanneke Wijbenga – Secretary
- Linda bij de Leij – Communication Officer
- Femke van der Bij – Communication Officer (as of January 1,2021)
- Natasha Maurits – Advisor
- Morris Swertz – Advisor

Thank you to everyone who contributed to DASH in 2020 and joined our data science community!



APPENDIX. LIST OF DASH ACTIVITIES 2020

PROJECTS DASH

- Two DASH projects were selected and received dedicated support
 - Project 1: Validation and implementation of predictive algorithms to facilitate patient-tailored medicine – supporting medical decision-making.
 - Project 2: Validation of decision support tools for orthopedic surgery.
- Another ten submissions were helped/connected.
- Preparation new project call.

EDUCATION DASH

- Student organisation AiMED; exchange and support with AI related matters
- 4 Mini lectures on YouTube channel:
 1. Corona on the Map (Geodienst)
 2. Anonymisation and Pseudonymisation
 3. AI Meets the Clinic (COSMONiO)
 4. Strategies for appropriate reliance on deep-learning algorithms (Usselab)
- 16 Jan. - Networking Event, brainstorm about the future of AI in medicine and AI pub quiz. (organised by AiMED)
- 30 Jan. - Symposium 'AI for trauma care' at Trauma surgery Department, Ludo Cornelissen.
- 28 Sept. - Lecture Medical imaging and diagnosis in the Minor Data Wise by Peter van Ooijen.
- 28 Sept. - DASH received a € 5000,- starting grant from the University of Groningen to set up a new Summer School 'Data Science and AI in Health'
- 19 Oct. - Lecture on Machine Learning in Diabetes at the Prominent meeting by Peter van Ooijen.
- Okt./Nov./Dec. - Supervision of a student group in their project Data Science with the Province of Drenthe (Minor Data Wise)
- 7 Dec. - Lecture on "AI in imaging – lessons learned outside of Pathology" at the European Pathology Congress by Peter van Ooijen.
- Set up learning path data science FSE/FMW

MACHINE LEARNING LAB

- Bi-weekly meetings all members of the Machine Learning Lab
- Starting implementation of the [Machine Learning Canvas](#) as intake for new projects.
- Urine Steroid Profiles project with dr. Riphagen from department Laboratory Medicine (with FSE Master student)
- Synthetic Data generation of colonoscopy images project started as part of dHealth in collaboration with Ziuz (with FSE Master student)
- PhD started on project on Distributed Deep Learning in collaboration with Maastricht Clinic and other partners (AMICUS project).
- Advisory meetings with a variety of clinicians to help them advance projects in Machine Learning.

FUNDING OPPORTUNITIES DASH

- DHealth Lab (SNN) proposal granted.
- EIT Health proposal granted, final approval pending. Copenhagen-Groningen-Tartu consortium is core of the project team (see collaborations incubator).
- ZonMW granted project "changes and use of the organization of care in general practice and out-of-hours severities: lessons learned from the COVID-19 pandemic (COVID-GP project)" Lillian Peters granted.

COLLABORATIONS INCUBATOR DASH

- Jan.- Mar. - Participation in selection committee Rosalind Franklin Fellow
- 10 Jan. - AI: Joining forces in Groningen at the University of Groningen, DASH participated in brainstorm
- 26-27 Jan. - Organisation of Copenhagen-Groningen-Tartu meeting including the topic Data Science, Machine Learning and Artificial Intelligence
- 30 Jan. – Attendance Health-RI conference
- 31 Jan. - AI Friday about AI in healthcare at Microsoft
- 6 Feb. - Research Safari
- 6 May. - Start collaboration with the University of Groningen in Northern AIC
- 25 May. - DASH represents UMCG at the NL AIC
- June – Aug. - In co-production with ResearchIT project and central IT department UMCG an inventory of necessary Graphical Processing Units (GPU's) for extension of the existing High Performance Compute Cluster UMCG.
- From Sep. – Jan Jurjen Uitterdijk becomes a member of the NL AIC Data Sharing working group
- 1 Oct. – Attendance (online) AI in Healthcare congress
- Okt. – Dec. – Participation in the assessment committee of the CIT Data Science calls
- From Nov. - Michiel Hooiveld becomes the NL AIC Liaison manager in the Ecosystems & Matchmaking working group
- July-Dec. – Intensifying collaboration with Isala Hospital, Zwolle. Drafting a 'Declaration of Intent' to collaboration other level of research on Cohorts and PhD education
- 17 Nov. – Second Copenhagen-Groningen-Tartu meeting including the topic Data Science, Machine Learning and Artificial Intelligence
- Dec. – Investigation of collaboration with TNO as part of the Northern AIC

PUBLIC OUTREACH

- 20 Jan. - Introduction to the Film 'Her' at the FORUM and discussion afterwards, Peter van Ooijen
- 30 Sept. - Participation Peter van Ooijen in the "make your own AI panel discussion" of Terarecon as a panellist

COMMUNITY BUILDING DASH

- Machine Learning Lab Meeting now with >50 people on mailing list, regular meetings on Wednesday morning every other week.
- 21 Jan. – Sparkle Event: Personal Health Data with speakers Lisette Eijdem (Connecting with Personal Health Environments) and Jetse Goris (An Introduction to Patient Centered Innovation (PACE) and Connected Care)
- 6 DASH Webinars (all webinars are recorded and can be viewed on our Youtube channel)
 1. 12 May + 19 May – Webinars on Data Science in Practice for Analysts (collaboration with Andre Capelle (representative of the UMCG technician), setting up a new 'Bring your own data' webinar on March 16, 2021)
 2. 30 Jun. – Webinar on Imaging and AI Biobanking
 3. Jul. – Webinar on Artificial Intelligence in Orthopaedic- and Trauma Surgery
 4. 23 Sept. – Webinar on Value-Based Healthcare, The Power of Data and Collaboration
 5. 20 Oct. - Nothing But The Truth & DASH Webinar on Looking at Data, What the Data Can Tell Us
 6. 24 Nov. – Webinar on AI in predictive infection management
- 5 Feb. - Presentation on DASH at Quarterly Meeting of Board of Directors UMCG
- 25 Feb. - Brainstorm at GRIAC on AI in Lung diseases.
- 27 Feb. - DASH - AI vision workshop
- 5 Mrt. - Presentation on Deep Learning at the IMDI CoRE Symposium on AI and Big data.
- 6 Oct. - DASH pitch at UTwente/UMCG matchmaking event
- 23 Okt. – Peter van Ooijen, on behalf of the UMCG, took part in the Think Tank Round Table meeting on 'Healthcare Workforce and organisational Transformation with AI – Enacting Change' of EIT Health Belgium-Netherlands
- 11 Dec. - Presentation on Artificial Intelligence at dept of pediatrics

COMMUNICATION DASH

- 11 Feb. - Publication on TopDutch about Digital Transition featuring DASH
- Publication “De rol van de MBB'er in de radiologie in het tijdperk van Kunstmatige Intelligentie” in ALTIUS
- Production of flyers
- Production of a DASH roll-up banner
- Production of a roll-up banner DAME project

AiMED

- 16 Jan. – AiMED Networking event with participants from our official launch in November, themed around brainstorming sessions on the role of AI in society and (medical) education
- 28 May. - Webinar dr. Els Maeckelberghe, Associate Professor on Bioethics and Research Ethics ‘AI & Ethics during the COVID-19 pandemic’
- 19 Jun. - Webinar Ir. Jorrit de Vries, Data Scientist/Engineer, Atos ‘An Introduction to Artificial Intelligence’
- 22 Jul. - AiMED officially incorporated as an association and registered at the KvK.
- 2 Dec. - Webinar Vincent Stirler, MD/PhD ‘Artificial Intelligence Research in Radiology’
- Published a temporary website: <https://sites.google.com/student.rug.nl/aimedgroningen>
- Three members joined UMCG's Data Science/AI summer school student committee
- Elected new board at the General Members Assembly on 9 February
- Started ML course and hackathon projects

NEEDS ASSESSMENT DASH

- 27 Feb. - Organisation of brainstorm about the future of AI to shape the AI vision of the UMCG
- 1 Nov. – Publication and adoption AI vision and AI roadmap UMCG