IPN unites scientists in the academic ICT field and acts as the authority when it comes to questions about future demands, desires and opportunities of ICT science and how to prioritise research in this area.

# Annual report 2024

Content

**Preface**

The IPN board is happy to present the 2024 annual report of ICT-research Platform Netherlands (IPN), the platform that brings together the scientific ICT-community and acts as a single point of contact when it comes to questions about future demands, wishes and possibilities of ICT science and how research in this area can be prioritised. IPN is supported by the Dutch Research Council (NWO).

IPN originated 25 years ago from a small group of enthusiastic scientists. Over the years, it has changed into a mature platform with a board, members, and extraordinary members. It is supported by NWO employees who work with great passion and enthusiasm. IPN undertakes concrete actions, organises events and discusses ICT-related topics with policy makers, research administrators and other relevant stakeholders. The IPN board includes representatives from ICT research from Dutch universities. IPN members are all computer science research departments of Dutch academic institutions and the Center for Mathematics and computer science (CWI).

With the help and efforts of all IPN members, and in good cooperation with NWO, many connections have been established, networks formed, and cooperation initiated between knowledge institutions, but also outside with companies and public organisations. Some highlights of what we achieved in 2024 are:

- The IPN website features a series of portraits of Dutch computer scientists and what drives them.
- We connect young researchers to the work of IPN, by inviting them to our annual strategic dinner (part of NWO ICT.OPEN), and opening a special board member position for a junior researcher.
- We installed the new IPN Distinguished Service award, as a recognition for outstanding service to the IPN community.
- Two new Special Interests Groups (SIG's) were added; Algorithmics and Complexity, and Human-Computer Interaction. With the creation of these two new SIG's, we feel that the IPN SIG's together form a good representation of the scientific ICT community.
- We announced two new IPN courses to support our future academic leader. The course targeting new department heads, potential IPN board members and researchers aiming to have national influence will start in March 2025. The junior course is planned to start in 2026.
- We started an initiative to discuss possibilities for a European sector plan computer science.

For 2025 we will continue with these activities. In addition, we plan to strengthen the communication and collaboration between the IPN board and the SIG's, as well as between the SIG's. We also like to further strengthen the work of the Ethics working group, and plan to create a working group that focuses on the well-being of ICT-academics.
In 2025, IPN will celebrate its 25th anniversary, a milestone that will not go unnoticed. We will organise various moments to celebrate the achievements of IPN together with the whole scientific ICT community. It is great to see what has been achieved within IPN in the last 25 years, and we believe many more wonderful things will happen in the next 25 years.

Marieke Huisman

## 1.1 Mission

*IPN is a platform that unites and represents scientists in the academic ICT field and acts as a single point of contact for all matters relating to ICT innovation and its importance for our current and future society. IPN builds and maintains a national community and develops policy to advance the field. The platform actively enhances diversity, equity, and inclusion in ICT.*

## 1.2 Vision

*IPN unites, strengthens, and advocates curiosity driven as well as use-inspired academic research and education on ICT in The Netherlands, to face the (ICT) challenges of today and tomorrow to ensure a bright and sustainable future for our digital society.*

## 2 ICT research and ICT education

### 2.1 Informatics sector plan success and lobby for European informatics sector plan

In the context of digitalisation and digital transformation, IT & Computer Science research & education plays a crucial role in addressing economical, societal & political challenges and shaping opportunities that emerge for a secure, prosperous and sustainable future. Addressing these challenges and opportunities requires coordinated and robust European investment in IT & Computer Science education and research. Following the success of the two Dutch sector plans where computer science was involved, the IPN board led by Gerard Barkema started in 2024 to take stock of whether setting up a European sector plan for IT & Computer Science would be feasible. To this end, many discussions were held in 2024 with various stakeholders at ministries, departments, (international) computer scientists, (international) interest groups and other bodies. These talks will continue in 2025.

**Practice-oriented research**

To connect further with HBO, IPN participates in the Advisory Board of the platform PRIO, the platform practice-oriented ICT research representing. In doing so, IPN aims to optimise cooperation between ICT research groups of HBO institutions and universities, between education and research and between researchers, companies, and social institutions. To strengthen the connection, PRIO became a special member of IPN in 2024, and IPN became a special member of PRIO.

**Top sector ICT/ KIA Digitalisation**

The ICT Top Sector is initiator and coordinator of the Digitisation Knowledge and Innovation Agenda, or KIA Digitisation for short. The KIA digitalisation provides a strategic framework for programming knowledge and innovation in the field of digitalisation and digital IT within the Mission-Driven Top Sectors and Innovation Policy. Included for the first time in the Knowledge and Innovation Covenant (KIC) for the period 2024-2027, the KIA digitalisation provides the framework for investments around ICT research and innovation for the next four years. There is regular interaction between IPN and the ICT Top Sector, and developments within the IC Top Sector are shared with IPN by the Science Figurehead of the ICT Top Sector. The 7 SIGs and the IPN board are all separately represented in the Advisory Board of the Digitalisation KIA.

## 2.2 NWO ICT research

IPN provides input on the opening of grant rounds of the Netherlands Organisation for Scientific Research. In cooperation with NWO and other relevant players in the Computer Science field, IPN keeps track of awards ICT research to individual researchers. And *not insignificantly* in 2024, several significant awards in ICT research have been received within the Dutch ICT research field.

**Awarded projects NWO**

Open competition ENW-M
Awarded grants round M22-4, M22-5, M22-6, M23-1, M23-2, M23-3:

- Dr Revantha Ramanayake, RUG - Complexities of Well-quasi-order-based logics through Proof Theory (COMWELT)
- Dr Sebastian Junges, RU - FuRoRe: Foundations of Runtime Monitoring
- Dr F.P. Pascoal dos Santos, UvA - Reputation as a new route to cooperation in multi-agent reinforcement learning
- Dr F. Corradi, TU/e & Dr F. Fioranelli TUD - NERD: Neuromorphic pERception framework for event-baseD radars
- Dr M. Chamberland, TU/e - VIBRANT: Visualising in vivo brain architecture with real-time cinematic tractometry
- Prof Frits Vaandrager, RU & Dr Petra van den Bos, UT - Evidence-Driven Black-Box Checking (EVI)

Open competition ENW-XL

- Dr S. Samardjiska, RU - Efficient and SCA - aware post-quantum cryptographic design for embedded systems (ESCAPE)
- Prof Jorge Pérez, RUG - Cyclic Structures in Programs and Proofs: New Harmonies of Theory and Praxis

Talent programme - Veni ENW

- Dr Y. Nazari, VU - Dynamic graph algorithms: distances and clustering
- Dr J. Olkhovskaia, TUD - Adaptive Algorithms for Non-Stationary Reinforcement Learning
- Dr M. Volk, TU/e - UNcertaInty In COntinuous-time maRkov chaiNs (UNICORN)
- Dr T.S. Neele, TU/e - Explainable Formal Methods with Certificates
- Dr U. Schmidt-Kraepelin, TU/e - From Ballots to Decisions: Enhancing Transparency and Fairness in Participatory Budgeting
- Dr J.M.M. van de Wetering, UvA - A diagrammatic toolbox for quantum circuit simulation
- Dr T.W.J. Kappé, OU - Code versus Flowcharts: Characterising Expressible Behaviour in Operational Semantics
- Dr T.J. Coopmans, CWI - Sherlock Holmes meets quantum noise: automatically deducing ways to correct errors in quantum computers

Talent programme - Veni TTW

- Dr C. Gao, TUD - Energy-Efficient Real-Time Edge Intelligence for Wearable Healthcare Devices
- Dr E. Talavera Martinez, UT - Understanding social interactions in first-person videos with multimodal learning

Talent programme - Vidi ENW

- Dr Steven Houben, TU/e - How does generative AI support collaboration between people?
- Dr Robbert Krebbers, RU - New programming languages for the development of correct concurrent software
- Dr Erik Bekkers, UvA - Neural Ideograms: Shaping AI with Geometry-Grounded Learning

Talent programme - Vidi TTW

- Dr Gunes Acar, RU - Web Security and Privacy Observatory (WeSPO)
- Dr Oriol Colomés, TUD - DigiOcean4Solar: A digital ocean for floating solar farms

Talent programme - Vici TTW

- Prof.Drir. Guido de Croon (m), TUD - Neuromorphic Learning for Advanced Insect-inspired Artificial Intelligence (NL-AI$^2$)

AiNed XS Europe Grant

- Dr J. Frommel, UU - Moderating Social XR: AI-based Herassment Detection
- Dr J.L.A. Heyninck, OU - LogicLM: Combining Logic Programs with Language Model
- Dr K.S. Luck, VU - TeNet: Text-to-Network for Fast and Energy-Efficient Robot Control
- Dr S. Pires de Oliveira, NKI - AI-based virtual immuno staining from H&E slides
- Dr W.J. dos Santos Silva, UU - Ordinality-informed Federated Learning for Robust and Explainable Radiology AI
- Dr Q. Tao, TUD - Physics-informed generative medical imaging: An AI- for- AI solution to fair data
- Prof G.J.P. van Westen, LEI - Combatting Resistance: Innovative Search for Infectious-agent Solutions (CRISIS)
- Dr D. Ye, UT - Geometric deep learning of shape variation in haemodynamic simulations
- Dr J.W. Brunekreef, NKI - FOMO-Shift: self-supervised distribution matching for safe deployment of AI foundation
- Prof Dr C.P. de Campos, TU/e - Towards expressive and reliable deep generative models for science
- Dr G. Cinà, AUMC - TRansnational validation of predictive and causal AI modeLs for the Intensive Care Unit (TRAIL-ICU)
- Dr Ir. C. Frenkel, TUD - Transforming the adaptability of decentralised AI
- Dr R. Hortsensius, UU - Dishonesty towards artificial intelligence across generations
- Dr H. Joudeh, TU/e - Physics-Informed Neural networks for earThquake lOcalization (PINTO)
- Dr J. Li, Westerdijk Institute - Discovery of novel biomass degrading enzymes based on PROtein structure SIGNatures through a Deep Learning Method (PROSIGN)
- Dr Ir. B. Sanderse, CWI - Entropy-consistent learning: harnessing the power of generative AI for realistic physics simulations
- Dr R. Su, TU/e - MIMIC: AI-based Identification of Stroke Mimics by Advanced Neuroimaging
- Dr K. Wu TU/e - Neural Network-Based Sequence FOlding for Breaking Optical Fiber CApacity Limit (FOCAL)

NGF AiNed Fellowship Grants

- Dr Martijn Starmans (m), EMC - Radiology and pathology join forces through Artificial Intelligence for Integrated Diagnostics (AIID)
- Dr Alessa Hering (f), RU - OncoFuture: Hybrid AI for Efficient Cancer Diagnosis and Follow-Up Assessment
- Dr Rianne Fijten (f), UM - Navigating the Impact of AI in Healthcare: An Exploration of Treatment Decision Making
- Dr Madelon Hulsebos (f), CWI - DataLibra: Democratising Insight Retrieval from (Semi-)Structured Data
- Dr Filip Ilievski (m), VU - Human-Centric AI Agents with Common Sense
- Dr Konrad Kollnig (m), UM - RegTech4AI: Pioneering Regulatory Technologies for AI and Making AI Regulation Work in Practice
- Dr Aaqib Saeed (m), TU/e - Private Ears, Shared Insights: Scaling Clinical Audio Understanding with Federated Learning

Open Technology Programme

- Dr Nikolaos Alachiotis, UT - BASES: Bio-inspired Advanced Security Testing for Embedded Systems
- Dr Bernhard Englitz, RU, LiveScope - Real-time monitoring of rodent interactions and wellbeing using machine learning
- Professor Rob Van Nieuwpoort, LEI - SuperCode: SUstainability PER AI-driven CO-Design

Computing Time on National Computing Facilities

In total, NWO-Science awarded in 2024 (until November 2024) 43 applications for large amount of computing time. 4 awarded applications within "Computer Science":

Snellius

- Prof M. Pechenizkiy (TU/e): 'Efficient Neural Network Scaling through Sparsity'
- Prof S. Hickel (TUD): 'Influence of Ablation on Transitional Flow Aerothermodynamics'
- Snellius and HPC Cloud (via Research Cloud) and Custom Cloud Solutions (CCS-MS4):
- Prof Dr Ir Dr J.Z. Shamoun-Baranes (UvA): 'Collaborative framework for animal movement research (CoFrAMR)'

*HPC Cloud (via SURF Research Cloud):*

- Dr I. Vagliano (AUMC/AMC): 'Research in clinical prediction models, natural language processing, causal inference, model interpretability, out-of-distribution detection, federated learning and health recommender systems'

Pending: 9 applications for Computer Science, including 3 large applications for LUMI:

- Dr J.H.G. Dauwels (TUD): 'Delft AI4WF: Delft Artificial Intelligence for Weather Forecast' *Computer Science and Earth science*
- Prof T. Shimizu (AMOLF): 'Next Generation Mycorrhizal Network Analysis' Biology*, Physics and Computer Science*
- Dr I.C. Dedoussi (TUD): 'Simulating aviation's impacts on the atmosphere, climate, and surface air quality' *Earth-, Technical- and Computer Science*
- Prof T.G. Gevers (UvA): 'A Large-scale Dataset of Gaussian Splats and Their Self-Supervised Pretraining' Computer *Science*
- Dr H. Holstege (AUMC-AMC): 'The role of VNTRS / 100+' *Life sciences: Bioinformatics and Genetics*
- Dr R.F. Pizzo (ASTRON): 'LOFAR Data Valorization' *Astronomy, Astrophysics, Computer Science*
- Dr A.S. Härmä (UM): 'Capacity of large foundation model architectures' *Computer Science*
- Dr A.C. Yates (UvA): 'Robust Search with Open-Source LLMs' *Computer Science* (LUMI application)
- Prof C.G.M. Snoek (UvA): 'Multilingual Image Generation' Computer *Science* (LUMI application)
- Prof C.G.M. Snoek (UvA): 'Hallucination-free Open Vision Langauge Model of the NL' *Computer Science* (LUMI application)

Thematic Digital Competence Centres 'bottleneck projects'

- Dr Carlos Martinez Ortiz, eScience centre - Best practices for sustainable software
- Dr Mathias Funk, TU/e - ODeDaI: Open Design Data Infrastructure (for the Design Discipline)

KIC MISSION "AI for Agriculture Horticulture, Water and Food"

- Prof Tamás Keviczky, TUD - A Layered, Explainable Approach to Intelligent Greenhouse Horticultur
- Dr Patrick Langenhuizen (main applicant), TU/e - AI for better animal welfare and smaller footprint: Real-time analysis systems for automated phenotyping of livestock (RealTimeAI4Livestock)

KIC MISSION "Collaboration between humans and (semi-)autonomous systems"

- Prof Ming Cao, RUG - AUTOROBUST: Robust and safe control of remotely operated offshore vehicles
- Prof Marie Postma, UvT - STEADFAST - Swarm Technology Enabling Advanced Drone-Facilitated Active Support Tactics for Military and First Responder Operations
- Prof Tina Comes, TUD - AI-COMPASS: Adaptive Intelligence in Crowd Crisis Management through AI-Human Coordination and Ethical Practice

KIC MISSION "Emerging Key Technologies"

- Dr Johan Mentink (m), RU - Disruptively green neuromorphic scientific computing leveraging stochasticity
- Prof Federico Toschi (m), TUD - Accelerating Rarefied Gas Dynamics
- Prof Henk Corporaal (m), TU/e - SNS: Self-healing Neuromorphic Systems
- Prof Wilfred van der Wiel (m), UT - IMAGINE: In-material sensing, learning and computing

KIC MISSION "Cybersecurity for digital resilience"

- Dr C. Hernandez Ganan, TUD -EGOS: Effective Governance for cybersecurity and Online Safety
- Tilburg University -NEPTARGOS: Nautical Empowerment for Proactive Threat Analysis and Resilience with Guardian Oversight Systems -.
- Dr K. Papagiannopoulos, UvA - Improved Secure Semiconductor Evaluation (ISSE): From Lab Techniques to Legal Frameworks -.
- Dr R.J.W. Sluis-Thiescheffer, HAN University of Applied Sciences -Building on Digital Identity
- Dr T. van Steen, LEI - From 'what went wrong?' to 'what works well?': Using Safety 2 principles to develop new cybersecurity solutions -.
- Dr S.E. Verwer, TUD - Find2Fix: reducing software errors using transparent AI -.

NGF NXTGEN Hightech 2024

- Prof N. van de Wouw, TU/e - Modular design of complex dynamical systems
- Dr R. Tóth, TU/e - AI-driven Holistic Design and Control Tools For Planar Motors

NWO Scientific Meetings and Consultations Domain Science 2024

- Dr Nina Rosa, WUR - Beyond domains: Interdisciplinary XR networking event for early-career academics
- Dr C. della Santina, TUD - Dutch AI and Robotics event at RSS: Robotics Science and Systems
- Dr C. Morais Fonseca, UU - 14th International Conference on Formal Ontology in Information Systems (FOIS 2024) and co-located meetings

- Dr B. Nicenboim, UvT - Annual Meeting of the Society for Mathematical Psychology and the International Conference on Cognitive Modelling
- Prof Dr Ir Dr M.E.H. van Reisen, LUMC - Strategy and dissemination meeting on an African Health Data Space
- Prof Dr Ir Dr G. Schäfer, CWI -17th International Symposium on Algorithmic Game Theory
- Prof Nelly Litvak, TU/e - NetSci NL- Dutch Network Science Society symposium
- Dr J.H. Mentink, RU -DUCOMS 2024
- Dr A. Bagheri, UU - BNAIC / BeNeLearn 2024
- Dr J.M. Weber, TUD - AI unleashed - Reshaping the boundaries of biosciences
- Prof Dr Ir Dr Mykola Pechenizkiy, TU/e - EWAF 2025: 4th European Workshop on Algorithmic Fairness
- Dr Thiago D. Simão, TU/e - BeNeRL Workshop 2025
- Dr J. Wildfeuer, WUR -Building Bridges: Multimodal AI, Semiotics and Socio-technical Future(s)

Take-off Spring round 2024, Phase 1 - feasibility studies - cluster Commit2Data

- Prof Emiel Krahmer, UvT - Towards a generic, personalised platform for communicating about health data: a feasibility study
- Prof Dirkjan Veeger, TUD - Keep me on track! Accessible technology for tracking wheelchair mobility performance

WECOM - NWA science communication call

- Dr Martin Skrodzki, TUD & Dr Julian Koellermeier, RUG - Artificial Intelligence on a journey: four suitcases for scientific discovery in a playful way
- Erik van Zwol & Prof Cees Snoek, UvA - The AI Society: conversations on the impact of artificial intelligence

Gravitation Grant

- Prof Tanja Lange, TU/e - Challenges in Cyber Security
- Co-PIsprof.Dr Lejla Batina (RU), prof.Dr Herbert Bos (VU), prof.Dr Marten van Dijk (CWI/VU), prof.Dr Christian Schaffner (UvA)

**Awards in ICT research**

Major Awards in ICT research in 2024:

- Advanced Grant from the European Research Council (ERC), Prof Dr Ir Herbert Bos
- KHMW Kees Schouhamer Immink Prize 2024, Dr Sujay Narayana
- Dutch Prize for ICT research, Dr Ivano Malavolta
- NWO Gravitation Grant, Prof Tanja Lange
- Autonomous Agents Research Award 2024, Prof Dr Catholijn Jonker
- AI Netherlands Diversity Leader Award, Dr Cynthia Liem Women

## 2.3 ICT Education


Many analyses, strategies and studies in recent years show that there is a growing shortage of ICT knowledge and skills in the Netherlands. That IT students are highly sought after in the current labour market is shown by analysis by the Research Centre for Education and the Labour Market (ROA) and the *Human Capital Agenda* ICT (HCA ICT) team within EZ. At the same time, there is a huge growth in the number of Computer Science students. To meet the demand from the labour market, new programmes

launched within the domain Computer Science, such as, for example, in the past year the English-language BSC programme 'Computer Science' in Maastricht, and the MSc programme 'MSc Data Science and Artificial Intelligence Technology' in Delft. IPN contributes pragmatically to the challenges in ICT higher education. IPN seeks connections within existing education to achieve further cooperation with the field. Both top-down and bottom-up, IPN looks for opportunities to implement within education in a coordinated way. To keep research and education developments well aligned the IPN board organises (semi) annual meetings with all directors of ICT education of the IPN members. This meeting is considered as a very useful tool to exchange information between the different directors of ICT education. Discussion topics in 2024 incstakeholders. In 2024, plans were to start/stop courses, start/stop numerus fixi, and educational challenges around political developments discussed.

**Research schools**

The ICT-related research schools, *Advanced School for Computing & Imaging* (ASCI), Institute for Programming Science and Algorithmics (IPA) and School for Information and Knowledge Systems (SIKS) are extraordinary members of IPN. A research school brings together the research and training of researchers in a particular field. The school contributes to the national alignment of research programmes within specific disciplines and has an important role in providing the 'third leg' of doctoral training, namely professional skills.

**Secondary education**

The “Beta Teachers' Chamber” (*beta-lerarenkamer*), an initiative founded by the Science Deans at the launch of the first *Sectorplan Beta & Techniek* due to the shortage of academically trained teachers in chemistry, physics, computer science and mathematics. The aim of the Beta Teachers' Chamber is to double the intake of Academic teacher training programmes by 2025 for physics, chemistry and mathematics and fivefold for Computer Science, compared to 2017-19. There is a representative from IPN in the Beta Teachers' Chamber.

**I-Partnership**

IPN is also in close contact with the initiative I-Partnership, part of Ministry of the Interior and Kingdom Relations, which connects stakeholders in government and education, through internships, field labs, PhD spots and many other forms of cooperation on topics such as information management, cyber security, AI and software development. IPN is a member of the steering committee I-Partnership.


## 2.4 IPN learning courses

In 2024, the IPN board expressed its desire to establish two courses - a junior and senior learning course. Initiating these IPN learning courses is part of IPN's multi-year strategy to support the future academic leaders of ICT research, and to further stimulate the position of ICT research and ICT researchers. With the IPN courses, IPN aims to improve the position of academic ICT research and better prepare computer scientists for important tasks.

**Junior IPN course**
The junior course is aimed at ambitious university lecturers with at least a few years' experience, novice university lecturers and tenure trackers who are expected to develop into academic leaders in the future. With this course, we hope to empower talented young researchers and train them to also increase the position of academic ICT research. The junior course is planned to start in 2026.

**Senior IPN course**
The senior course targets new department heads, potential IPN board members and researchers aiming to have national (and potentially international) influence. The senior course will start in March 2025.

### 2.5 Diversity, Inclusiveness and Equality in Computer Science


A special initiative is the IPN *Equity, Diversity and Inclusion (EDI) Working Group*, which aims to improve equity, diversity and inclusiveness in the Dutch academic ICT community. The group organises concrete actions and events in this area and actively discusses EDI-related topics with policymakers, heads of departments Computer Science and other relevant stakeholders. The working group, which includes representatives from all Dutch universities, CWI and NWO, meets four times a year. In 2024, the group working organised the fifth edition of the annual meeting Alice & Eve on 25 October 2024 in Leiden. The event aims to honour and bring together. This one-day event for studying and working women in Computer Science featured several keynotes. Two initiatives from the Netherlands came second in this year's Minerva Informatics Equality Award (MIEA): the UU Women's Network (WICS) and the Alice & Eve event.

### 2.6 Ethics and Computer Science

The aim of the IPN Ethics Working Group is to provide a platform for sharing information and knowledge about the various ethics committees that already exist or are being established within the various Informatics departments in the Netherlands. In recent decades, the global has become research community increasingly aware of the responsibility researchers bear when conducting research on humans. This ethical awareness encompasses a variety of disciplines, including contemporary technical disciplines such as as computer science. Since 2024, the IPN ethics working group is reorienting itself and broadening the scope of the working group, to better embed the topics of ethics in ICT research.

### 2.7 ICT-Next Generation

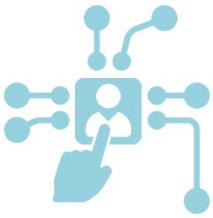
The IPN working group *ICT-Next Generation (ICTng)* was disbanded during 2024. The working group was set up as a network of university teachers and associate professors exchanging experiences and ideas, defining common interests, working on common *roadmaps* for ICT research and education in the Netherlands, and jointly influencing the national and international ICT agenda.
In the first half of, 2024 *ICTng* was closely involved in activities (co-)organised by IPN, including a programme component at the IPN strategic evening at NWO ICT.OPEN2024. By adding a 'next generation' board member to the IPN board in 2025, there will be a different approach to connecting the ICT next generation, and addressing the challenges and opportunities faced by the next generation of computer scientists.

## 2.8 Special Interest Groups

The special interest groups (SIGs) of IPN are communities within the larger IPN organisation with a shared interest in advancing a specific area of knowledge, learning or technology where members cooperate to affect or to produce solutions within their particular field, and may communicate, meet, and organise conferences. 2024 started with five SIGs:

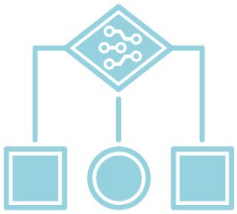
- Data Science Platform Netherlands (DSPN)
- VEReniging Software Engineering Nederland (VERSEN)
- Special Interest Group Artificial Intelligence (SIGAI)
- Special Interest Group Cyber Security (SIG Security)
- Future Computer Systems and Networking (FCSN)

Two new IPN SIGs were established in 2024:



- **Dutch Special Interest Group on Human-Computer Interaction (SIG HCI)**

SIG HCI is the Dutch Special Interest Group on Human-Computer Interaction. SIG HCI represents the Dutch academic institutions doing research and education in the field of Human-Computer Interaction and cooperates with the Dutch ACM SIGCHI Chapter (CHI NL). The SIG HCI aims to raise awareness of the importance of HCI research and education in the Netherlands.



- **Special Interest Group Algorithmics and Complexity (SIG ALGO)**

Algorithm research concerns the development of new methods to solve complex computational problems. The focus is on methods that allow proof of correctness in all cases, and proof of good scaling of the resources they require (e.g. time), when working with increasingly large datasets. This implies that these methods can be used in applications where the reliability of computed results is crucial. Algorithm research includes computational problems on graphs, geometry, combinatorial structures, topological structures, and strings.

With the creation of SIG HCI and SIGAlgo, coverage of the informatics research field by the has SIGs (and thus IPN) improved even more. A survey of ICT researchers on field representation was also conducted in 2024. With the current seven SIGs, field coverage is high.

The SIGs meet frequently and keep a finger on the pulse of their rapidly developing research areas. Traditionally provide much of the content of the various tracks at NWO ICT.OPEN, the annual event that brings scientists from all ICT disciplines research and industries together to learn, share ideas and network.

In addition, are the SIGs (co-)organisers of annual events such as, for example, *The 4th VERSEN Workshop on Programming Languages in The Netherlands* PLNL2024 in Groningen (VERSEN), CompSys - The Computer Science conference designed to highlight Dutch Computer Systems and Networks research CompSys 2024 in Sint-Michielsgestel (FCSN) and *Joint international science conferences on AI and Machine Learning*, BNAIC 2024 in Utrecht (SIGAI). The new also SIGs have annual events: for example, the annual SIG Algo symposium, and several events with CHINL (SIG HCI).

## 3 Knowledge sharing and dissemination

IPN manifests itself through activities undertaken by the platform. These include collecting, capturing and sharing current knowledge and information with its constituency and bringing together researchers, teachers, students, producers, users and policymakers to knowledge and expertise about improve Computer Science research.

### 3.1 ICT with Industry


IPN is closely involved in the annual organisation of *ICT with Industry,* a workshop focused on devising innovative solutions to scientifically challenging, commercial business cases. NWO organises this workshop together with the Lorentz Centre. The aim is to stimulate cooperation and knowledge exchange between science and industry. Scientists and researchers from both academia and industry work together for a week to find original solutions to challenging industrial problems. The teams consist of PhD students and postdocs from research institutes and universities throughout the Netherlands. Each team has access to a company representative and senior researcher to ensure progress and scientific quality. During the week-long workshop, participants connect with industry by working on a business case. Together with the company, they go through the problem and work as a team to find a solution. Also in 2024, four different cases were developed at the Lorentz Centre in Leiden, namely:

*Case 1: BrainCreators, Exploring efficient interactions between human and machine intelligence for infrastructure inspection*
*Case 2: eScience Center, Do machines learn non-explicit semantics?*
*Case 3: Axini, AI/LLMs and Model Based Testing*
*Case 4: Axini, Modeling and Model Based Testing of 3D games*

### 3.2 NWO ICT.OPEN with IPN evening

In collaboration with NWO and Platform PRIO, IPN brings together scientists from all ICT research disciplines and industry to learn, share ideas and network at NOW NWO ICT.OPEN. In 2024 the conference took place on 10 & 11 April at the Beatrix Theatre in the Jaarbeurs in Utrecht.


NWO ICT.OPEN2024 on Wednesday 10 and Thursday 11 April hosted more than 50 presentations, 96 posters and 19 demos showcasing the best and most exciting ICT developments. The theme of NWO ICT.OPEN2024 was 'Science in The Service of Society' and there was a strong focus on sustainability and ICT, among other things. On Wednesday 10 April, in addition to the IPN pre-event, there were 7 interactive sessions on a wide range of topics and special guest Barbara Kate Mann, member of the House of Representatives, with a strong interest in and commitment to digitisation. On 11 April, the scientific programme concluded with an awards ceremony. In addition, the total of 558 participants had the opportunity to attend presentations by three renowned *speakers*: Lejla Batina (Radboud University), Ivon Brandić (Vienna University of Technology) and Erik Fledderus (Windesheim University of Applied Sciences).

IPN traditionally provides the pre-conference evening as a regular feature at the conference in the form of an IPN strategic dinner. During the private evening, IPN informs delegates from IPN members, special IPN members, IPN SIGs, IPN working groups and additional invited guests about developments within Academic ICT research in the Netherlands and invites them to contribute their thoughts. IPN also discusses the recent challenges faced by ICT research and the field and the expected challenges in the coming years. During the evening IPN reflects on the successes of the past year and looks ahead to the future.

Among other things, 2024 celebrated the creation of the KIA Digitalisation with a contribution from Frits Grotenhuis (director Topsector ICT) and Inald Lagendijk (captain of Science of the Topsector ICT). In addition, there was an extra focus on the next generation, not only in the programme with a programme component by the (former) leader of ICTng Cynthia Liem, but also by explicitly having all IPN members a next bring along person. In addition, the successes of the past year were celebrated, and we looked ahead to the developments of the coming year.

### 3.3 Dutch Prize for ICT research

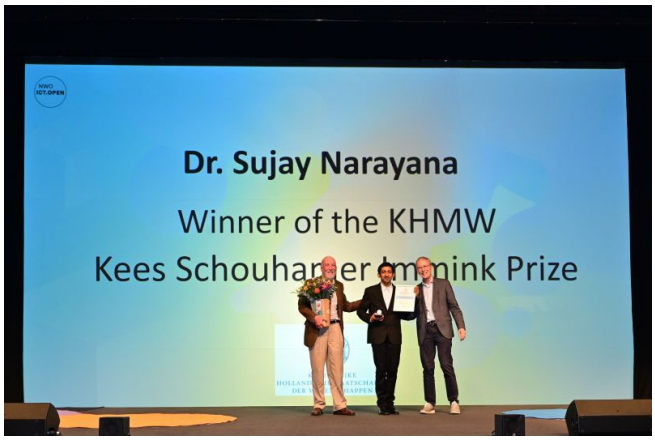
The prestigious Netherlands Prize for ICT Research (ICT Prize) is awarded annually to a scientific researcher, maximum 15 years after their PhD (at the time of the decision), who has conducted innovative research or is responsible for a scientific breakthrough in ICT. The ICT prize will be made available from 2023 by a financial contribution from all IPN members (except WUR) and with a grant from COMMIT\. The procedure to arrive at a winner goes through the Royal Holland Society of Sciences. This has been contractually established with all parties.


During NWO ICT.OPEN2024, on 11 April at the Jaarbeurs Utrecht, the Dutch Prize for ICT Research 2024 was awarded to Ivano Malavolta, associate professor in the Software and Sustainability Research group at VU University Amsterdam. Malavolta is at the helm of research into energy-efficient robotics software. Amid an era in which robotisation is flourishing in high-tech industries and autonomous robots, such as self-driving cars and drones, are booming, energy consumption in these systems is becoming a crucial design consideration, including for the software that controls these systems. The development of *'green robotics software'* is growing rapidly. Malavolta has undeniably made substantial progress in this innovative area of informatics.

During NWO ICT.OPEN, Malavolta accepted his prize. In addition to the prize money of €50,000 made available to the winner for the benefit of the research, an educational video has been also produced with accessible explanations of the award-winning work. The purpose of this video is wide dissemination to reach (potential) students and give insight into the challenges of ICT research in an uncomplicated way.

**KHMW Kees Schouhamer Immink Dissertation Prize**

This dissertation prize to crown original research in the field of technical computer science and telecommunications in a broad sense was made possible by a donation from Prof K.A. Schouhamer Immink.




In 2024, the prize went to Dr Sujay Narayana for his PhD thesis on *Orchestrating Mixed-Criticality Melody: Reconciling Energy with Safety for Mixed-Criticality Embedded Real-Time Systems.* Biannually the KHMW Kees Schouhamer Immink Prize is presented at NWO ICT.OPEN. IPN is closely involved in organising the presentation.

### 3.4 IPN Distinguished Service Award

In 2024, IPN has decided to start recognising an individual who has provided outstanding service to the IPN community with the IPN Distinguished Service Award.
The nominee must contributed in one or more of the following ways have demonstrably to the position of the IPN community in the context of NWO, other academic research disciplines or the Dutch Ministries of Economic Affairs and/or Education, Culture and Science; have shown extraordinary tenacity, resourcefulness and/or ingenuity in obtaining funding for the IPN community; go beyond the normal performance requirements that may be expected of an IPN member (extraordinary) and thus set an example for others; and/or develop a funding programme beneficial to the IPN community time of such depth and scope that special recognition is warranted over a long period. The award will be presented for the first time at NWO ICT.OPEN 2025.

### 3.5 I/O Magazine

IPN's I/O Magazine was published twice in 2024. The issues covered many current affairs and trivia in the omputer science, including on innovative AI methods for medical imaging, award winners in computer science, how social media platforms can responsibly connect people, neurodiversity, the first Knowledge and Innovation Agenda (KIA), smart and human-centred handling of information, knowledge and language, Rebuilding Cybersecurity from the ground up and, of course, much more.

In 2024 IPN also supported the development of I/O Magazine Special Commit2Data, which was handed over to Ferdinand Rozema, portfolio holder for Informatics on the NWO ENW domain board, on the eve of NWO ICT.OPEN2024 by Frits Grotenhuis, director KIA Digitisation, and Boudewijn Haverkort, chairperson Commit2Data. Commit2Data, was a multi-year national research and innovation programme based on public-private partnerships (PPPs), focused on cross-sector collaboration on big data issues.


October 2024


April 2024

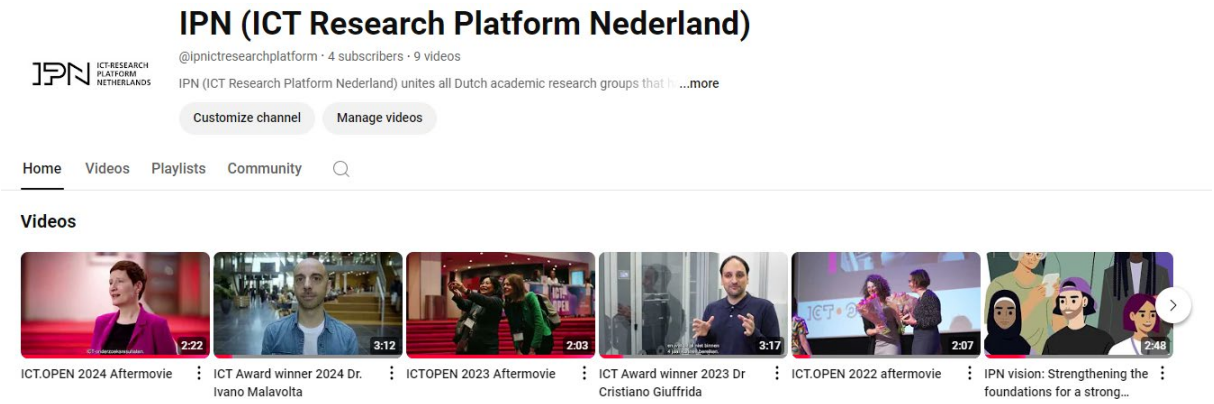

Special April 2024

### 3.6 IPN Digital

In 2024, IPN launched several new sections information on the website. *Recognitions* were added containing information about Dutch ICT researchers who have been awarded with a prestigious prize and *Portraits* containing portraits of ICT researchers initially mainly from the IPN community. In 2024 IPN published interviews with prominent persons within the community: Marten van Dijk, Gerard Barkema, Catholijn Jonker, Andy Pimentel, Marieke Huisman, Jeroen van der Ham-de Vos, Geert-Jan Houben, Han La Poutré, Tanja Vos, Bart Jansen and Mehdi Dastani.

**IPN on YouTube**

On the IPN YouTube channel on which IPN-related videos are posted, videos such as 2024 ICT Award winner video and the compilation NWO ICT.OPEN 2024 have been added




**IPN LinkedIn profile**

The IPN LinkedIn profile, created in late 2023, was used in 2024 mainly to alert to new content on the website but also to share relevant information with the IPN community (by re-posting).

**No IPN e-newsletter**

Relevant IPN-related information around the ICT Prize and the I/O Magazine is also disseminated via (the newsletter of) NWO.

The possibility for IPN to be able to tag along with coverage in the NWO e-newsletter sent to participants who have indicated they wish to receive “Informatica” or “Computer Science” is the reason that IPN does not intend to develop IPN e-newsletter for the time being.

# 4 Board and members

## 4.1 IPN board

In 2024, the IPN board met seven times. The meeting dates in 2024 were on 10 January, 20 February, 22 April, 21 June, 20 September, 25 October, and 21 November.


The IPN board consisted of the following members at the end of 2024:

- Catholijn Jonker, TU of Delft/UniversityLeiden (chair)
- Marieke Huisman, University of Twente
- Andy Pimentel, University of Amsterdam
- Gerard Barkema, Utrecht University
- Han La Poutré, CWI/ TU Delft

## 4.2 IPN members

IPN has an assembly meeting four times a year, in which all universities, NWO and CWI (the ordinary members) are represented. Twice a year, the extraordinary members, SIGs and working group representatives are also invited to those IPN assembly meetings. The meeting dates in 2024 were on 12 March, 4 June, 25 September, and 10 December.

The IPN member representatives by the end of 2024:

- University of Amsterdam (Paola Grosso and Evangelos Kanoulas)
- Vrije Universiteit Amsterdam (Stefan Schlobach and Jaap Heringa)
- Leiden University (Todor Stefanov and Nele Mentens)
- Delft University of Technology (Arie van Deursen and Alan Hanjalic)
- Tilburg University (Marie Postma and Richard Starmans)
- Eindhoven University of Technology (Johan Lukkien and Nirvana Meratnia)
- Utrecht University (Marc van Kreveld and Judith Masthoff)
- Radboud University (Lejla Batina and Arjen de Vries)
- University of Twente (Geert Heijenk and Giancarlo Guizzardi)
- University of Groningen (Paris Avgeriou and Rineke Verbrugge)

- Maastricht University (Rachel Cavill and Mark Winands)
- CWI (Tijs van der Storm and Peter Boncz)
- Wageningen University (Bedir Tekinerdogan)
- Open University (Tanja Vos)
- NWO (Femke Stephan and Loes van Bree)

Changes in the IPN membership database:

- Paola Grosso and Evangelos Kanoulas took over UvA representation from Alfons Hoekstra and Theo Gevers in 2024.
- Stefan Schlobach took over VU representation in 2024 from Felienne Hermans, who had taken over VU representation from Koen Hindriks at the beginning of 2024.
- Nirvana Meratnia took over TU/e representation from Bettina Speckmann in 2024.
- Marc van Kreveld and Judith Masthoff took over UU representation from Johan Jeuring and Anja Volk in 2024.
- Tijs van der Storm took over CWI representation from Nanda Piersma in 2024.
- Due to the death of Bastiaan Heeren, the OU had only one representative by the end of 2024
- NWO IPN secretary Loes van Bree has been temporarily replaced in summer 2024by Sanne Pot

### 4.3 Extraordinary IPN members

In addition to ordinary members, IPN also has extraordinary members. IPN extraordinary members represent organisations that are active in the ICT field, want to stay involved and are willing to engage in joint activities. Twice a year, the extraordinary members, SIGs and working group representatives are also invited to the IPN assembly meetings.
The extraordinary l IPN members are:

- The Advanced School for Computing and Imaging (ASCI)
- The Institute for Programming research and Algorithmics (IPA)
- Netherlands e-Science Center (NLeSC)
- Platform Informatics Education Netherlands (PION
- Platform Mathematics Netherlands (PWN)
- The Netherlands Research School for Information and Knowledge Systems (SIKS)
- SURF
- TNO
- Association for Logic (VvL)
- Platform for Practice-based ICT Research (PRIO)

Changes in the IPN special membership database:

- In 2024, PRIO joined

## 5 Finance IPN

The Netherlands Organisation for Scientific Research supports IPN and contributes *in kind* through staff and administrative support. In addition, NWO contributes financially to IPN's activities through an ENW Tafel Informatica budget, which the Tafel Informatica budgets annually in consultation with IPN.

| Activity | Budgeted | Expenditure |
|---|---|---|
| ICT-Prize 2024 | € 55.000 | € 54.457 |
| I/O Magazine & online communications | € 60.000 | € 46.788 |
| IPN-Activities | € 18.400 | € 12.400 |
| Total | € 135.000 | € 113.645 |