



BESLUT

Datum för beslut:  
2025-01-17

Diarienummer:  
KTH-RPROJ-0276016

## Beslut om ett strategiskt initiativ, KTH Center for AI

Detta beslut har undertecknats elektroniskt.

### Beslutet

KTH:s vicerektor för forskning beslutar att:

- Finansiera *KTH Center for AI* med 2 mnkr centrala medel under 2025.
- Utse Alexandre Proutiere, EECS-skolan, som ansvarig forskningsledare för satsningen.
- KTH Center for AI bör förhålla sig till det andra beviljade Strategiska initiativet KTH GAIN – Generative AI for Next-Generation Science, såväl i innehåll som kommunikation.
- Återrapportering enligt utvärderingskriterier, för dialog om fortsatt bidrag ska vara Forskningsberedningen tillhanda 15 januari 2026.

### Ärendet

KTH:s initiativ för forskningssatsningar inrättades enligt förslag från Översyn av KTH:s särskilda forskningssatsningar (Dnr: KTH-RPROJ-0276016). Förslaget innebär att centrala medel ska kunna användas till direkt finansiering av tre- till femåriga forskningsinitiativ med det huvudsakliga målet att dra in externa forskningsanslag.

Under föregående år har Forskningsberedningen arbetat vidare med att konkretisera förslaget, och kommit fram till ett antal kriterier för ett KTH Strategiskt initiativ samt kriterier för utvärdering (Protokoll 10/2024):

*Kriterier för KTH Strategiskt initiativ:*

- Strategiska forskningsinitiativ är ett sätt för KTH att kraftsamla inom områden där det krävs nya samarbeten som är viktiga utifrån KTH:s vision och mål. Det kan dels vara att förstärka ett område som redan finns eller utveckla ett nytt.
- Strategiska forskningsinitiativ ska kunna initieras av både forskare, KTH:s ledning och forskningsberedningen.

- Strategiska forskningsinitiativ är satsningar med central finansiering på 0,5 - 3 mnkr per år i max fem år.
- Målsättningen för en beviljad satsning är att generera betydande externa bidrag till KTH om totalt minst 100 mnkr. Det kan vara externa bidrag från flera olika finansiärer som tillsammans stärker området för forskningsinitiativet. Utväxlingen blir den viktigaste indikatorn som följs upp årligen.

*Kriterier för utvärdering av beviljat KTH Strategiskt initiativ ska ske efter ett år enligt nedan:*

- Projektansökan – En eller flera projektansökningar.
- Kraftsamling - Vilka PI´ s är med i projektansökan/ansökningar?
- Förberedelsearbete inför utlysningar.
- Exempel på nya forskningssamarbeten.

Till Forskningsberedningens möte den 18 december inkom förslaget KTH Center for AI, med professor Alexandre Proutiere, EECS-skolan, som ansvarig forskningsledare, se bilaga 1.

Baserat på Forskningsberedningens diskussion rekommenderas Vicerektor för forskning att stödja att förslaget beviljas men med mindre budget, 2 mnkr för år 2025, samt att KTH Center for AI bör förhålla sig till KTH GAIN såväl i innehåll som kommunikation. En utvärdering ska ligga till grund för diskussion om fortsatt finansiering och i vilken omfattning. (KTH-RPROJ-0276016 Protokoll 10/2024).

**Detta beslut** har fattats av vicerektor för forskning Annika Borgenstam efter föredragning av forskningsrådgivare Johan Schuber.

Kungl. Tekniska högskolan



Annika Borgenstam, vicerektor för forskning KTH



Johan Schuber, forskningsrådgivare, avdelningen för forskningsstöd inom Verksamhetsstödet

Bilaga 1: projektförslag

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## Sändlista

För åtgärd:

Alexandre Proutiere, EECS-skolan

Kopia till:

Skolchef EECS-skolan

Controllergruppen, [controller@kth.se](mailto:controller@kth.se)

Chefen för avdelningen för forskningsstöd Maria Gustafson

Tf Kommunikationschef Gunilla Iverfelt

Sanna Pehrson, avdelningen för forskningsstöd

Anna Aminoff

Expeditionsdatum:

2025-01-17



# KTH Strategic Research Initiative project proposal

## Title and applicant information

Project title	<b>KTH Center for AI</b>
Name and title of PI	Alexandre Proutiere, Professor
Affiliation of PI (KTH school)	KTH EECS
E-mail adress of the PI	<a href="mailto:alepro@kth.se">alepro@kth.se</a>
Financial officer name at PI department	Sivia Cardenas Svensson
Name, title and affiliation (KTH Schools) of Co-PI's	Aristides Gionis, Professor, KTH EECS Karl Henrik Johansson, Professor, KTH EECS Danica Kragic, Professor, KTH EECS Jana Tumova, Associate Professor, KTH EECS Ozan Öktem, Professor, KTH SCI

## Funding

Requested funding for 2025	2 900 000
Requested funding for 2026	3 000 000
Requested funding for 2027	3 000 000
Requested funding for 2028	3 000 000
Requested funding for 2029	3 000 000
Total funding requested (Max 3 Million SEK/year)	14 900 000

## Executive summary

Research in artificial intelligence (AI) is more essential than ever, shaping technological, scientific, and societal advancements. AI has the potential to revolutionize industries, from healthcare and education to engineering and environmental sciences, by solving problems previously considered insurmountable. Over the past decades, AI research has flourished across various schools and departments at KTH. Forging ahead, there is an urgent need to strengthen, accelerate, and better coordinate these initiatives, while enhancing their international visibility. This ambition becomes even more critical in light of the recommendations from the recent [AI commission report](#), which advocates for establishing centres of excellence for AI research. KTH must position itself as a leading candidate to host one of these centres.

We propose a strategic initiative to establish a KTH Center for AI. We suggest an ambitious agenda focused around three key research areas of AI.

*Foundations of AI:* Efforts will be dedicated to strengthening the theoretical and computational underpinnings of AI, ensuring future systems that are provably robust and transparent. This area includes the study of theoretical models for efficient learning and optimization in AI, as well as critical issues such as ethics, fairness, and accountability.

*AI for Scientific Discovery:* Here AI will be leveraged to accelerate advanced data analysis with physics- and mathematics-aware generative machine-learning tools, and complex simulations, driving breakthroughs in medicine, life sciences, physics, and materials science, and thus, empowering scientific discovery.

*AI for Engineering and Society:* Research efforts in this area will focus on applying AI to engineering and industrial design, and to societal applications, and thus, enhancing key systems and infrastructures vital to modern society, including robotics, communication networks, transportation systems, and power grids.

Our objective with this project is to *lay the groundwork for establishing a KTH Center for AI*. Our concrete plans and objectives are the following:

1. Identify (i) strategic AI areas where KTH should intensify its activities and prioritize key recruitments and allocation of resources and (ii) potential AI-focussed partners in industry and public organizations.
2. Apply for an ELLIS unit to strengthen KTH's position in the European AI research network.
3. Study the structure and operations of successful AI centers worldwide. Identify best practices and invite key individuals involved in these centers to provide their insights.
4. Organize high-level workshops and meetings to present and discuss the plans with national and international stakeholders.
5. Organize a distinguished lecture series with prominent AI researchers to increase the visibility of KTH internationally and to increase the prominence of AI within KTH.
6. Explore the role of an AI center within all levels of KTH education.

Through this initiative, we assemble a team that covers the diversity and breadth of AI research conducted at KTH, spanning mathematics, computer science, robotics, and control. The team is well positioned to unify efforts and lead the creation of a KTH Center for AI. The team has the experience and the capacity to leverage existing KTH efforts, including WASP, Digital Futures, SeRC, DDLS, and Cybercampus.

## Objectives and activities

The aim is to lay the foundations for establishing a KTH Center for AI. Towards this aim, we have defined the following sub-goals and associated activities.

*Define the profile of the KTH AI center:* We will begin by conducting a detailed inventory of KTH's strengths in AI. This exercise involves identifying key KTH researchers working on AI and mapping their most significant contributions into the AI landscape. We will assess the areas where KTH research is leading innovation and determine which AI domains should be strategically developed in the near future. For instance, generative AI and its applications in AI for science may be among the priority areas. A similar inventory will be conducted for relevant companies in Sweden to identify potential external stakeholders for the center. This includes KTH strategic partners and industrial partners that KTH traditionally collaborates with, but it also extends beyond these to explore new partnerships. We will engage with AI-focused stakeholders to understand their expectations, assess their interest in participating in the center, and define their potential contributions and collaboration opportunities.

*Establish an ELLIS unit at KTH:* We plan to apply for an ELLIS unit. The European Laboratory for Learning and Intelligent Systems (ELLIS) is a prestigious pan-European AI network of excellence focused on advancing fundamental science, driving technical innovation, and addressing societal challenges. Founded in 2018, ELLIS leverages machine learning as the cornerstone of modern AI and aims to secure Europe's leadership in this highly competitive field by establishing a decentralized, multi-centric AI research laboratory. ELLIS brings together leading AI scientists from academia and industry across 16 specialized research programs. It also fosters collaboration and skill development through its PhD and Postdoc Program. Currently, the network includes 41 ELLIS units across 17 countries, yet none are based in Sweden. Establishing an ELLIS unit at KTH would mark a significant milestone in positioning Sweden on the ELLIS map and advancing the goal of creating a world-class AI center of excellence.

*Learn from success and strategic planning:* To lay the groundwork for the KTH AI Center, we will draw inspiration from the world's leading AI centers by studying their structure, operational modes, and key success factors. This process includes identifying best practices and engaging with distinguished individuals who have played pivotal role in these centers. These experts will later be invited to form the Scientific Advisory Board, providing evaluation and guidance once the center is operational. To further refine our plans, we will host high-level workshops and meetings, bringing together national and international stakeholders. These meetings will serve as platforms for presenting our vision, gathering feedback, and incorporating valuable insights.

*Improve visibility and communication:* We will increasingly communicate about the AI center, expanding its visibility as our plans become more refined. At the appropriate stage, we will launch a dedicated webpage that not only showcases the ELLIS unit but also serves as a comprehensive hub for information about AI research at KTH. We also plan to organize a distinguished lecture series featuring prominent AI researchers who will be invited to KTH to deliver research lectures and interact with KTH AI researchers. Such events not only attract global attention and improve KTH's visibility but also foster collaborative opportunities with leading experts and institutions worldwide. Within KTH, the series will serve as a catalyst for intellectual growth, inspiring faculty and students to engage more deeply with AI research. Through our interaction with world AI experts, we will also get

the opportunity to discuss their experience from participating in prominent AI centers (see previous objective).

*Explore the interplay between AI and KTH education:* We aim to address several key aspects related to AI and education. First, AI is reshaping education: it changes the way students learn, approach tasks, and solve problems, and how teachers engage with and support their students. This transformation presents both opportunities and challenges that need to be carefully considered. Second, the gap between cutting-edge AI research and industrial applications is remarkably narrow. This emphasizes the importance of equipping graduates with the latest AI knowledge and skills and challenges the slow university processes to update academic curriculums. To address these challenges, we will initiate discussions and organize dedicated workshops involving faculty, industry representatives, and educational experts.

## Strategic relevance

The proposal builds on three key research areas selected for their scientific impact on AI, their societal importance, and their potential to leverage the activities where KTH has strong scientific presence. The first area is "Fundamentals of AI", which focuses on theoretical and algorithmic underpinnings of AI. This includes addressing critical issues, like efficient learning, optimization for AI, discovery of structure in data, explainability, fairness, and accountability. KTH faculty active within this area include PI Alexandre Proutiere, co-PI Aristides Gionis (algorithms and data analysis), Mikael Johansson (optimization), Wojciech Chachólski, Martina Scalamiero, Kathlén Kohn (structure/geometry of data), and Henrik Bostrom (interpretable and explainable machine learning). The second area is "AI for scientific discovery" where the focus is on AI for data analysis, forward/inverse modelling, and simulations in sciences. KTH faculty active within this area include Ricardo Vinuesa (physics), co-PI Ozan Öktem, Joakim Anden (inverse modelling), and Jens Lagergren, Pawel Herman, Erik Lindahl and Rodrigo Moreno (life science and medicine). The final third area is "AI for engineering and society" where the focus is on applying AI to design and enhance key engineering systems, like robotics, communication networks, transportation systems, health information systems, and power grids. KTH faculty active in this area are co-PI Danica Kragic, co-PI Jana Tumova, co-PI Kalle Johansson, Hedvig Kjellström and Tobias Oechtering (autonomous and communications systems), and Joakim Jaldén, Tony Lindeberg, Hossein Azizpour and Saikat Chatterjee (signal/image processing).

Some of the research by the above listed faculty is pursued as part of established research environments within KTH, like Digital Futures, SeRC, and SciLife Lab. It is also supported by national research programs that specifically target AI, like WASP, WASP-DDLS, and WASP-WISE. In fact, KTH faculty is the top recipient of these grants. KTH researchers also make extensive use of compute infrastructure provided by PDC or the National Academic Infrastructure for Supercomputing in Sweden (NAISS).

The strategic relevance of having a KTH Center for AI comes from its ability to bring together the above-mentioned research on AI at KTH. Excellent basic and applied AI research needs to be pursued in an inclusive environment characterised by openness, integrity, and academic freedom. This in turn is possible if the centre has a broad profile. Such a centre will bring together KTH faculty with external stakeholders, like KTH strategic partners, which in turn will lead to new collaborations. Having a broad scientific profile is also motivated by the desire to support high-risk high-impact research to tackle challenges that currently limit the usage of AI in scientific discovery or critical decision making. A key aspect will be to offer selected scientists

(based on excellence) the possibility to pursue long-term research with higher scientific risk. Bridging theory and practice while at the same time allowing for ambitious blue-sky research are necessary if KTH's research in AI is to be world-leading and to have a major societal impact.

The final strategic relevance of the proposal concerns education. AI has the potential to revolutionise how we teach and learn. A growing body of research suggests that AI has the potential to enhance and improve education in several ways. As an example, AI-powered tutoring systems have increased student learning and engagement, AI can also be used to personalise and adapt learning experiences, potentially leading to improved learning outcomes and increase student satisfaction. Using AI in higher education also raises many ethical and practical concerns, such as perpetuating and amplifying biases and inequalities, potential cheating issues, and even the possibility of replacing human educators altogether. Despite the above, there is a lack of practical examples in the current literature on AI in education that can help us better understand the full potential of AI on education. The KTH Center for AI will address this gap by supporting activities that explore integrating AI in engineering education. Examples include the implementation of AI-powered intelligent tutoring systems in engineering education, understanding their effectiveness, and exploring the ethical and practical considerations of their use. These issues are all well aligned with the scientific profile for the centre.

## **Project plan**

Whenever appropriate, we will prepare the application for a KTH Center for AI and collaborate with partners to respond to relevant Vinnova calls. Assuming that the Swedish VR announces a call for an AI excellence center with deadline by the end of 2026, the following outlines a detailed plan for the initiative's first three years.

*Year 1:* We will identify approximately 30 KTH researchers who span the three key AI areas to be included in the ELLIS application and the AI excellence center. A workshop will be organized with these researchers to define the vision and prioritize AI research areas. Simultaneously, we will initiate outreach to industry and public sector partners, culminating in a workshop in early 2026 to explore collaboration opportunities. Additionally, we will analyze the structure and practices of successful AI centers, including ELLIS nodes, and prepare the ELLIS application for submission in the fall of 2025.

*Milestone 1:* Submission of ELLIS node application.

*Year 2:* We will host a workshop with external stakeholders and launch a distinguished seminar series featuring leading global AI experts. A high-level meeting with experts from successful AI centers will be held to gain strategic insights, which will be used in drafting the application for the AI excellence center. In the second half of the year, efforts will focus on launching the ELLIS unit, establishing the necessary administrative structures, and developing communication tools. Furthermore, we plan to organize an "AI and KTH education" workshop, scheduled for early 2027. Finally, the AI excellence center application will be finalized and submitted.

*Milestone 2:* Submission of application(s) (see section on funding strategy) to establish a KTH Center for AI.

*Year 3:* The ELLIS unit will become fully operational, driving collaborations and advancing research initiatives. The KTH AI excellence center will be formally launched, and we will create its Scientific Advisory Board. Partnerships with industry and public sector stakeholders will be deepened, so that the center's first major collaborative projects can start.



Additionally, insights from the AI and education workshop will be leveraged to suggest ways to adapt KTH's curriculum.

*Milestone 3:* Inauguration of the KTH Center for AI.

## Strategy for funding

AI research is poised to attract significant public investment, as highlighted in the recent AI Commission report. In particular, the report proposes the creation of three AI excellence centers, each with funding of 100 MSEK per year over a 10-year period – a funding opportunity we aim to target. In addition, we plan to leverage funding opportunities through VINNOVA's Advanced Digitalisation program (to foster collaborations with industrial partners) and other AI-specific initiatives from organizations such as SSF. The PIs involved in this proposal have an established track record of successfully securing competitive funding and will continue to pursue calls from WASP, VR, Digital Futures, and ERC.

## Project team composition and resources

As evident by the CVs and as outlined briefly in the section on “Strategic relevance”, the PI and co-PIs are all leading AI researchers within the aforementioned three key research areas, which are Foundations of AI, AI for Scientific Discovery, and AI for Engineering and Society. They are therefore well suited to lead the work towards establishing a KTH Center for AI that has a broad scientific profile. Additionally, co-PI Kragic is an ELLIS fellow (one of three in Sweden). This means, among others, that she has the role of providing strategic advice and leadership to ELLIS not only on scientific matters, but also in terms of how to build and grow ELLIS. Co-PI Kragic will be Director of the ELLIS node at KTH.

## Budget

**2025** The budget for 2025 concerns funding activities necessary for preparing and submitting two applications. The first is to ELLIS for establishing an ELLIS node at KTH and the second is most likely to the Swedish research council for establishing a KTH Center for AI.

There are a number of activities planned to support this work. One is to organise two workshops (WS) for KTH faculty working with AI (*KTH faculty WS*). The first of these 2-day workshops will be held early in 2025 and the second serves as a follow-up. The output from these will be an important input for defining the scientific profiles for the ELLIS node and the KTH AI center. We also plan to organise two 1-day workshops with a similar purpose, but this time focusing on selected external stakeholders (*Stakeholder WS*). These bottom up activities are complemented with a smaller more focused 1-day meeting with decision makers within private and public sector (*High level stakeholder meeting*). The aim is to establish a strategic long-term relationship with these stakeholders. Yet another activity is to host various meetings and visits with selected scholars with the aim to form a scientific advisory board for the ELLIS node (*Formation of SAB*). These activities are supported with three visits to other highly successful AI centres/labs (*Site visits*), like the Turing Institute in London, MILA in Montreal, or MSR AI for Science in Amsterdam. At two occasions we also plan to host shorter visits by scientifically distinguished scholars that lead successful AI centers (*Visits by AI center leaders*).

Activities above are mostly designed to support the preparation of proposals. We also plan to blend these with activities that are purely scientific. The main such event is to organise a 3-day

international mini-conference at KTH related to AI research (*Annual meeting*). Finally, we also plan to kick-start a series of lectures on AI research at KTH. At six occasions we will bring eminent speakers from prestigious universities and research labs to KTH from all around the world (*Distinguished lecture series*). These lectures will also be broadcasted on video.

Coordination of preparation of proposals is set to two scientifically qualified persons at 10% FTE. This is a minimum level of funding for preparing such extensive proposals, like the ELLIS node application in 2025 and the expected application to Swedish research council for an AI center at KTH in 2026. The coordination therefore needs administrative support at 50% of FTE. The latter is for gathering data/statistics on AI research at KTH, like grants, awards, and bibliometrics. It also includes help in handling the logistics associated with the extensive set of activities outlined above. The funds for the administrative support are *not* included in the budget, so we assume these will be provided by KTH's University Administration.

**2026** The budget for 2026 focuses on launching the ELLIS node (assuming our application to ELLIS is successful) and for preparing and submitting the application(s) necessary to acquire long-term funding (from Swedish research council) for establishing a KTH Center for AI.

The difference to activities in 2025 is that we replace *Formation of SAB* with *SAB meeting* (assuming we have an SAB in place). We also only plan to make one site visit instead of three. The final difference is the ELLIS fee.

Funding for coordination of preparation of proposals is at the same level, so the same comments regarding administrative support that are made above for 2025 also hold here.

**2027-2029** Funding for this period focuses on launching the KTH Center for AI. The coordination is set to 45% of FTE distributed over two persons with similar level of administrative support as for 2025–2026.

Difference to 2026 is that we now plan for a single site visit/year with the purpose to establish strategic partnerships for KTH Center for AI. We also plan for one visit by an AI center leader.

Proposal preparation	2025	2026	2027	2028	2029	
<i>Coordination</i>	510 000	530 000				
<i>Administrative support</i>	750 000	770 000				
<i>Formation of SAB</i>	250 000					
<i>Site visits</i>	410 000	280 000				
<b>AI Center</b>						
<i>Coordination</i>			1 400 000	1 400 000	1 400 000	
<i>Administrative support</i>			790 000	810 000	830 000	
<i>ELLIS fee</i>		250 000	250 000	250 000	250 000	
<b>Workshops</b>						
<i>KTH faculty WS</i>	500 000	500 000				
<i>Stakeholder WS</i>	300 000	300 000	150 000	150 000	150 000	
<i>Annual meeting</i>	500 000	500 000	500 000	500 000	500 000	
<b>Focused activities/meetings/lectures</b>						
<i>High level stakeholder meeting</i>	75 000	75 000	75 000	75 000	75 000	
<i>SAB meeting</i>		150 000	150 000	150 000	150 000	
<i>Visits by AI center leaders</i>	100 000	100 000	50 000	50 000	50 000	
<i>Site visits</i>			140 000	140 000	140 000	
<i>Distinguished lecture series</i>	300 000	300 000	300 000	300 000	300 000	
<b>Total (excl admin support)</b>	<b>2 900 000</b>	<b>3 000 000</b>	<b>3 000 000</b>	<b>3 000 000</b>	<b>3 000 000</b>	<b>14 900 000</b>
<b>Total</b>	<b>3 700 000</b>	<b>3 800 000</b>	<b>3 800 000</b>	<b>3 900 000</b>	<b>3 900 000</b>	<b>19 100 000</b>

## Two-page CVs for PI and co-PIs

### Alexandre Proutière

KTH Royal Institute of Technology  
Stockholm 10044, Sweden

+46(0)734618051  
alepro@kth.se

#### 1. Work experience

KTH, Royal Institute of Technology, EECS <i>Professor (Department of Intelligent Systems / Division of Decision and Control Systems)</i>	2011 – present
Microsoft Research, Cambridge, UK <i>Permanent researcher</i>	2006 – 2011
Ecole Normale Supérieure, Paris, France <i>Assistant professor, Department of Computer Science</i>	2004 – 2006
France Telecom R&D, Paris, France <i>Researcher and senior expert engineer</i>	2000 – 2006
French Ministry of Foreign Affairs, Paris, France <i>Project and team manager, "Service du Chiffre"</i>	1999 – 2000
European Molecular Biology Laboratory, Heidelberg, Germany <i>Researcher in image processing</i>	1997

#### 2. Education

Ecole Polytechnique <i>PhD in applied mathematics</i> <i>Supervisor: Francois Baccelli</i>	2003 Palaiseau, France
Telecom Paris Tech <i>Engineering degree (equivalent to MSc)</i>	1997 - 1998 Paris, France
Engineer from the "Corps des Mines" <i>See <a href="https://en.wikipedia.org/wiki/Corps_des_mines">https://en.wikipedia.org/wiki/Corps_des_mines</a></i>	since 1997 Paris, France
Ecole Normale Supérieure <i>"Magistere" (post-graduate equivalent) and MSc in mathematics and CS</i> <i>See <a href="https://en.wikipedia.org/wiki/%C3%89cole_normale_sup%C3%A9rieure_(Paris)">https://en.wikipedia.org/wiki/%C3%89cole_normale_sup%C3%A9rieure_(Paris)</a></i>	1992 - 1996 Paris, France

#### 3. Research grants

Digital Futures Fellow, SRA-TNG <i>500kSEK per year</i>	2021-2024
WASP NEST "Learning in Networks" <i>Main PI, 20 MSEK</i>	2022-2025
VR individual grant "Optimal Active Exploration in Reinforcement Learning" <i>PI, 4 MSEK</i>	2022-2025
SSF "Cyber-security for learning and control Systems" <i>Main PI, 33 MSEK</i>	2019-2024
WASP Autonomous systems and AI <i>7 PhD students</i>	
Digital Futures project, "Data-Limited Learning of Complex Dynamical Systems" <i>co-PI, 5 MSEK</i>	2022–2024
VR individual grant "RL: Minimal Exploration and Model Reduction" <i>PI, 4 MSEK</i>	2017–2021
SSF "ICT-Psi: an ICT platform for sustainable infrastructures" <i>co-PI, 19 MSEK</i>	2012–2016
ERC consolidator grant "Fluid Spectrum Access" <i>PI, 12 MSEK</i>	2012–2017

#### 4. Publications

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<https://dblp.org/pid/p/AlexandreProutiere.html>

[https://scholar.google.com/citations?hl=en&user=g5sya5cAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=g5sya5cAAAAJ&view_op=list_works&sortby=pubdate)

#### 5. Supervision

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PhD students (As main supervisor): 13 ( 2 before joining KTH)

Post-docs: 10

#### 6. Academic service

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Chair of the Stochastic Networks conference, Stockholm 2024

Area chair at NeurIPS and at ICML, since 2016

Local chair of COLT (Conference on Learning Theory), Stockholm, 2018

Editorial board of JMLR since 2020

Editorial board of IEEE Transactions on Information Theory, 2017 – 2019

Editorial board of Queueing Systems and Applications, 2010 – 2013

Editorial board of ACM/IEEE Transactions on Networking, 2009 – 2013

Editorial board of IEEE Transactions on Control of Network Systems, 2014 – 2016

Editorial board of Performance Evaluation, 2007 – 2010

TPC co-chair of ACM Sigmetrics / Performance 2016

Associate editor with S. Borst (Bell Labs) and D. Shah (MIT) of a special issue of Queueing Systems and Applications of Mathematics to Wireless Systems, 2011

Chair and organizer with R. Johari (Stanford) of two sessions on Recent

Directions in Stochastic Games at the Informs Applied Probability conference, Stockholm, July 2011

#### 7. Selected invited keynotes, tutorials, and courses since 2021

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Keynote at the ENRSI, Stockholm, Sweden	<i>Sept. 2023</i>
Keynote at YEQT XV Machine Learning for Stochastic Networks, Eindhoven, The Netherlands	<i>Nov. 2022</i>
SNAPP invited lecture, online	<i>Oct. 2022</i>
Invited course in RL, postech, South Korea	<i>Feb. 2022</i>
Lecture at the ECE Communications and Signal Processing, Univ. of Michigan	<i>Jan. 2021</i>
Invited talk at ICTS workshop on Advances in Applied Probability, Bangalore	<i>Jan. 2021</i>

#### 8. Awards and honors

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ERC consolidator grant 2012 – 2017

Engineer of the Corps of Mines since 1996 (composed each year by the 10 top-ranked students from Ecole Polytechnique and 2 students from Ecole Normale Supérieure, Paris)

Best paper award at ACM Sigmetrics 2004

Best paper award at ACM Mobihoc 2009

Best paper award at ACM Sigmetrics 2010

ACM Sigmetrics Rising Star Award, 2009, "For significant contributions to the analysis and design of distributed control mechanisms in wired and wireless data networks"

Ranked in top 23 nationally in France to get into Ecole Normale Supérieure, Paris, 1992

Ranked 3rd nationally in France at the competitive exam for admission at the Ecole Nationale des Mines de Paris, 1992

## curriculum vitae: Aristides Gionis

October 28, 2024

Website: [www.kth.se/profile/argioni](http://www.kth.se/profile/argioni)

Email: [argioni@kth.se](mailto:argioni@kth.se)

### EMPLOYMENT

WASP professor, KTH Royal Institute of Technology, Sweden	2020 – present
Adjunct professor, Aalto University, Finland	2020 – present
Full professor, Aalto University, Finland	2017 – 2019
Associate professor, Aalto University, Finland	2013 – 2017
Visiting professor, University of Rome “Sapienza”, Italy	fall 2016 and autumn 2024
Senior research scientist, Yahoo! Research, Spain	2006 – 2012
Postdoctoral researcher, University of Helsinki, Finland	2003 – 2006

### EDUCATION

Ph.D. Computer Science, Stanford University, USA	2003
Dissertation title: Algorithms for similarity search and clustering in large data sets	
Adviser: Professor Rajeev Motwani	
M.S. Computer Science, Stanford University, USA	1998
B.S. Computer Science, University of Athens, Greece	1994

### RESEARCH INTERESTS

Algorithmic data analysis, machine learning, data mining, data clustering, graph algorithms, discrete optimization, social-network analysis, fairness and diversity in information-access systems.

### INDUSTRIAL EXPERIENCE

Senior research scientist and group manager in Yahoo! Research.	2006 – 2012
Duties involved scientific lead, technology transfer, and managing the Web Mining group activities.	

### PROFESSIONAL ACTIVITIES

Action editor for Data Mining and Knowledge Discovery (DMKD)	2017 – present
Associate editor for the ACM Transactions on the Web (TWEB)	2018 – present
Associate editor for the ACM Transactions of Knowledge and Data Discovery (TKDD)	2014 – 2021
Associate editor for the IEEE Transactions of Knowledge and Data Engineering (TKDE)	2012 – 2016
Program committee co-chair in ECML PKDD 2010, WSDM 2013, TheWebConf 2022, and WSDM 2024	
Area chair or senior program-committee member in over 30 international conferences	
Program-committee member in more than 90 international conferences	
Member of 5 best-paper award committees and 2 ACM SIGKDD dissertation award committees	
Examiner in 28 Ph.D. dissertation committees	

### RECENT COMPETITIVE FUNDING

(Total of 6.6m€ raised in external competitive funding)	
co-PI in MSCA doctoral education network “ARMADA”	2025 – 2028
WASP industrial PhD student (with Ericsson)	2021 – 2025
PI in the ERC AdG project “REBOUND”	2020 – 2025
Co-PI in the H2020 RIA project “SoBigData++”	2020 – 2024
Co-PI in the Academy of Finland project “MLDB”	2019 – 2023
Co-PI in the Academy of Finland project “AIDA”	2018 – 2022
PI in the Academy of Finland project “Agra”	2018 – 2019
PI in the Academy of Finland project “Nestor”	2015 – 2019
Co-PI in the H2020 RIA project “SoBigData”	2015 – 2019

**SUPERVISION OF GRADUATE STUDENTS AND POSTDOCS**

- KTH Royal Institute of Technology, Sweden
2020 – present
- Current: 6 PhD students / 2 postdocs
- Graduated: 1 PhD student / 4 postdocs
- Department of Computer Science, Aalto University
2013 – 2023
- Graduated: 9 PhD students / 8 postdocs

**FELLOWSHIPS AND AWARDS**

- ISI fellow (Institute for Scientific Interchange Foundation), Turin, Italy
2018 – 2021
- Best foundational paper award: “Ranking with submodularity functions on the fly” (PhD student Guangyi Zhang)  
SDM 2023
- Best paper award: “From acquaintance to best friend forever: robust and fine-grained inference of social-tie strengths”  
MLG 2018
- Test of time paper award: “Finding high-quality content in social media”  
Eugene Agichtein, Carlos Castillo, Debora Donato, Aristides Gionis, and Gilad Mishne.  
Paper published in 2008, award received in 2018
- Best student paper award: “The effect of collective attention on controversial debates on social media”  
(PhD student Kiran Garimella)
WSDM 2018  
Web Science 2017
- Best student paper award: “Reducing controversy by connecting opposing views”  
(PhD student Kiran Garimella)
WSDM 2017
- Best student paper award: “Discovering dynamic communities in interaction networks”  
(MS student Polina Rozenshtein)
ECML PKDD 2014
- Best paper award: “On the feasibility of multi-site web search engines”
CIKM 2009
- Best student paper award: “Fast shortest path distance estimation in large networks”  
(PHD student Michalis Potamias)
CIKM 2009
- Best paper award: “The discrete-basis problem”
PKDD 2004
- Microsoft Research Fellowship
2001 – 2003

**ORGANISATION OF SCIENTIFIC MEETINGS**

- Co-organizer of Dagstuhl seminar 24391, September 2024
- Co-organizer of Integrity 2020 workshop, in conjunction with WSDM 2020
- Co-organizer of the OCEAN 2018 workshop, in conjunction with SIGKDD 2018
- Treasurer of WSDM 2017
- Workshop co-chair for SIGIR 2016
- Program co-chair for the ICDM 2013 and 2016 PhD student forum
- Co-organizer of the SNOW 2013 workshop, in conjunction with WWW 2013
- General co-chair of ECML PKDD 2010

**INVITED PRESENTATIONS AND KEYNOTE TALKS**

- 19 invited talks in international conferences, workshops, and scientific events

**TUTORIALS IN CONFERENCES AND PhD SCHOOLS**

- 21 tutorials in international conferences and PhD schools

**GRANTED PATENTS**

- 10 granted US patents

**PUBLICATIONS SUMMARY**

- Google scholar page: <https://scholar.google.com/citations?user=11JgipcAAAAJ>
- 2 book chapters, 62 journal articles, and 178 peer-reviewed conference publications
- 30 KDD, 20 ICDM, 18 ECML/PKDD, 17 WebConf, 15 CIKM, 15 DMKD, 13 WSDM, 12 SDM, 6 TKDD, 5 PVLDB, 5 ICDE, 4 SIGMOD, 4 SIGIR, 4 TKDE, 3 NeurIPS, 2 ICML, ...
- 299 coauthors
- *h*-index: 68; # citations: 27 519, according to Google scholar on October 2024

## Curriculum Vitae of Karl H. Johansson

### Academic degrees

1992 MSc in Electrical Engineering  
1997 PhD in Automatic Control, Lund University  
2002 Docent, Automatic Control, KTH Royal Institute of Technology

### Selected current positions and assignments of importance

2024–2025 Vice President Diversity, Outreach & Development, IEEE Control Systems Society  
2023– Member of the Advisory Council of SWEDAC, Sweden's National Accreditation Body  
2021– Executive Committee, C3.ai Digital Transformation Institute  
2020– Founding Director, Digital Futures  
2020–2026 International Federation of Automatic Control (IFAC) Council  
2020– Member of the Advisory Board of Department of Automation, Tsinghua University  
2018– Swedish Research Council (VR) Distinguished Professor  
2015–2025 Member of the European Control Association (EUCA) Council  
2010– Wallenberg Scholar, Knut and Alice Wallenberg Foundation (KAW)  
2007– Chaired Professor, Networked Control, Electrical Engineering and Computer Science, KTH

### Selected previous positions

2021–2024 IEEE Founders Medal Committee  
2015–2024 Steering Board, Center for Resilient Critical Infrastructures, Swedish Civil Contingencies Agency  
2022–2023 President, EUCA  
2019–2023 Chair, IEEE Control Systems Society Fellow Nominations Committee  
2018–2023 Distinguished Professor of Overseas Academician, Zhejiang University  
2020, 2022 Chair, ERC Consolidator Grant Panel on Systems and Communication Engineering (PE7)  
2019–2022 Scientific Council for Natural and Engineering Sciences, Swedish Research Council  
2017–2020 Chair, IFAC Awards Committee  
2016–2020 International Chair Adjunct Professor, NTNU, Norway  
2013–2020 Director, Stockholm Strategic Research Area ICT The Next Generation  
2016–2018 Elected member, IEEE Control Systems Society Board of Governors  
2016–2018 Chair, IEEE Simon Ramo Medal Committee  
2016–2017 Visiting Scholar, University of California, Berkeley  
2016, 2018 Member of the ERC Consolidator Grant panel on Systems and Comm Engineering (PE7)  
2015–2018 Member of the Board, Drive Sweden, VINNOVA SIP on Automated Transport Systems 2015–  
2016 Visiting Fellow, Institute of Advanced Study, Hong Kong UST  
2014–2017 Visiting Professor, School of EEE, Nanyang Technological University, Singapore  
2013–2015 Chair of the VR Evaluation Panel in Signals and Systems  
2009–2016 Director, VR ACCESS Linnaeus Centre, KTH  
2008–2011 Chair of IFAC Technical Committee on Networked Systems  
2006–2007 Visiting Professor, California Institute of Technology, Pasadena  
2006–2011 VR Senior Researcher  
1999–2007 Assistant and Associate Professor, KTH  
1998–2000 Visiting Research Fellow, University of California, Berkeley

### Selected major distinctions and awards

2024 IEEE CSS Hendrik W. Bode Lecture Prize (highest distinction awarded by IEEE CSS)  
2023 IFAC Outstanding Service Award  
2022 Supervisor IEEE CSS Hybrid Systems TC Outstanding Student Paper Prize  
2020 Supervisor Best Student Paper Award, IFAC Workshop on CPHS  
2017 Fellow of the Royal Swedish Academy of Engineering Sciences  
2017 IEEE Control Systems Society Distinguished Lecturer  
2017 VR Distinguished Professor Grant (first such grant to KTH)  
2015 IEEE Transactions on Automation Science and Engineering Best Application Paper Award  
2014 Best Theory Paper Award of the World Congress on Intelligent Control and Automation  
2013 Fellow of the IEEE  
2009 Best Paper Award, IEEE International Conference on Mobile Ad-hoc and Sensor Systems  
2009 KAW Wallenberg Scholar (among first ten Wallenberg Scholars awarded in all sciences)  
2004 Future Research Leader, Swedish Foundation for Strategic Research (SSF)  
1998, 1999 Young Researcher Award, LM Ericsson's Foundation for Electrotechnical Research  
1996 IFAC Young Author Prize  
1996 Young Researcher Award, Scania AB  
1993 Peccel Award, International Institute of System Analysis, Laxenburg, Austria

### Publications and patents

>300 refereed journal papers, >600 peer-reviewed conference papers, 33 book chapters, 1 book, 3 edited books, 7 patents. Google Scholar h-index 104, citations 53 161,  
<https://scholar.google.com/citations?hl=en&user=wWCUYdsAAAAJ>

#### Research expertise

Networked and distributed control; Cyber-physical and cyber-secure control systems; Hybrid and embedded systems; Applications in transportation, energy, and automation networks

#### PhD supervision and postdocs

Supervisor or co-supervisor of 34 graduated PhD's. Currently supervising 16 PhD students.  
Past supervision of 63 postdocs. Currently supervising 13 postdocs.

#### Selected plenary presentations at major international conferences and institutions

IEEE CDC, 2024; ICARCV, 2024; CAC, 2024; IEEE ISPPC, 2023; IEEE MED, 2023; VEHITS, 2023; ICAT, 2023; IFAC CSC, 2022; IEEE ISIE, 2022; CoDIT, 2022; ACM-IEEE CPS-IoT Week, 2022; Dayawansa Lectures, TTU, 2022; GAITC, Hangzhou, 2022; Peking U Engineering Science Seminar, 2022; Distinguished ICON Seminar, Purdue U, 2022; CAA CVCI, 2021; IEEE SysTol, 2021; 25th Int. Conf. on Methods and Models in Automation and Robotics, 2021; World Artificial Intelligence Conf., 2021; 23rd Brazilian Conf. on Automation, 2020; Max Planck Institute for Intelligent Systems, 2020; Int. Conf. on Industrial Artificial Intelligence, 2020; 14th APCA Int. Conf. on Automatic Control and Soft Computing 2020; 54th *Regelungstechnisches Kolloquium*, 2020; ETH Distinguished Seminar in Robotics, Systems and Control, 2019; IEEE Conf. on Control Technology and Applications, 2019; IEEE Int. Conf. on Control and Automation, 2019; IFAC Workshop on Control of Transp. Systems, 2019; Nicholson Distinguished Lecture, Sheffield U, 2018; IFAC Symp. on Robust Control Design, 2018; ACM MobiHoc, 2018; Pierce Lab. Seminar Series, MIT, 2017; CCDC, 2017; ECC, 2016; DREAMS Seminar, UC Berkeley, 2016; Int. Conf. on Control, Automation and Systems, 2015; IEEE Multi-Conf. on Systems and Control, 2014; CCC, 2014; IFAC NECSYS, 2010

#### Selected editorial board memberships

2024– Editorial Board of the IFAC journal Annual Reviews in Control  
2022– Editorial Board of the ACM Transactions on Cyber-Physical Systems  
2018–2023 Editorial Board of the ACM Transactions on the Internet of Things  
2018–2023 Editorial Committee for Annual Review of Control, Robotics, and Autonomous Systems  
2013–2020 Editorial Board of the European Journal of Control  
2015–2019 Senior Editor of the IEEE Transactions on Control of Network Systems  
2008–2010 Editorial Board of the IEEE Transactions on Automatic Control  
2007–2012 Editorial Board of the IET Control Theory and Applications  
2003–2006 Editorial Board of the IFAC journal Automatica

#### Selected organization of international conferences

2024 General Co-Chair, European Control Conference  
2023 IPC Co-Chair, IEEE Conference on Decision and Control  
2011, 2014, 2017, 2020, 2023 Technical Associate Editor or Associate Editor, IFAC World Congress  
2019 IPC Chair, European Control Conference  
2019 IPC Vice-Chair for Tutorial Sessions, IEEE Conference on Decision and Control  
2015 Special Session Chair, IEEE Int Conference on Automation Science and Engineering  
2013 IPC Co-Chair of the European Control Conference  
2013 General Chair of the 5th ACM Workshop BuildSys  
2010 General Chair of the ACM-IEEE Cyber-Physical Systems Week  
2010 IPC Co-Chair 13th ACM Int Conference on Hybrid Systems: Computation and Control  
2009 IPC Co-Chair for IFAC NECSYS  
2008 IPC Co-Chair for IEEE Conference on Automation Science and Engineering

#### Selected major ongoing projects

AllDrive, Strategic Vehicle Research and Innovation, VINNOVA, 2022-2026; Co-PI  
ULTIMATE, Research and Innovation Actions Project, EU Horizon Europe, 2022-2025; Co-PI  
SUCCESS (Sustainable Cyber-physical Software-defined System Slicing), SSF, 2022-2027; Co-PI  
Digital Futures, Strategic Research Area, Swedish Government; PI  
Humanizing the Sustainable Smart City, Digital Futures, 2019-2025; Co-PI  
Distinguished Professor Grant, VR, 2018-2027; PI  
Wallenberg Scholar, KAW, 2010-2029; PI

*Stockholm, December 9, 2024*



## Curriculum vitae

Name: Kragic, Danica  
Nationality: Swedish/Croatian  
Date of birth: 10-08-1971  
URL for web site: [www.csc.kth.se/~danik](http://www.csc.kth.se/~danik)  
ORCID: 0000-0003-2965-2953 <https://orcid.org/0000-0003-2965-2953>  
Google scholar (22229 citations, hI 76) [Danica Kragic Google scholar](#)

## EDUCATION

2006: Docent/Habilitation, Computer Science, KTH, Sweden  
2001: PhD in Computer Science, KTH, Sweden  
1995: MSc in Mechanical Engineering, University of Rijeka, Rijeka, Croatia

## CURRENT POSITION(S)

2021: co-Director, Wallenberg AI, AS and SW Program, Sweden  
2008: Professor, EECS, KTH

## PREVIOUS ACADEMIC POSITIONS

2007 - 2008 Associate Professor, Royal Institute of Technology, KTH, Stockholm  
2004 - 2006 Assistant Professor, Royal Institute of Technology, KTH, Stockholm  
2004 Researcher, INRIA, Rennes, France  
2003 Researcher, Johns Hopkins University, USA  
2001 - 2002 Postdoctoral researcher, Centre for Autonomous Systems, KTH

## MAJOR APPOINTMENTS (selection)

2021 – Fraunhofer IKS, Advisory Board Member  
2020 – Chair, Royal Swedish Academy of Sciences, Class VIII Technical sciences  
2020 - Centre for Interdisciplinary Studies in Rhythm, Time and Motion, Norway, Advisory Board  
2019 – Stockholm Resilience Center, Advisory Board Member  
2019 – Head, Division, Collaborative Autonomous Systems, KTH  
2018 – University of Rijeka, International Scientific Committee Member  
2018 – WASP Sweden, Scientific Coordinator of the AI/MLX track  
2013 – 2018, Max Planck Institute for IS, Advisory Board Member  
2012 – 2017 Young Academy of Sweden, founding member  
2012 - 2017 Vice Dean, School of Computer Science and Communication, KTH  
2008 – 2018 Director, Centre for Autonomous Systems, KTH  
2010 - 2014 Department Head, Computer Vision and Active Perception Lab, CSC, KTH  
2006 – 2011 Undergraduate Committee, Member, CSC, KTH

## INDUSTRIAL APPOINTMENTS

Board of Directors: FAM AB, SAAB AB, HM Group

## FELLOWSHIPS and AWARDS (selection)

2021, AAIA Fellow  
2020, Swedish Research Council, Distinguished Professor  
2019, ELLIS Fellow  
2018, Knut and Alice Wallenberg Foundation, Scholar  
2017, Best Manipulation Paper Finalist, IEEE ICRA  
2016, IEEE Fellow  
2015, The Royal Swedish Academy of Engineering Sciences, Member  
2014, IEEE Humanoids Best Conference Paper finalist  
2013, IEEE ICRA Best Manipulation Paper Award  
2012, Honorary Doctorate, Lappeenranta University of Technology  
2012, IEEE IROS Best Cognitive Robotics Paper finalist  
2012, IEEE IROS Best Automation Paper finalist  
2012, IEEE Senior member  
2011, The Royal Swedish Academy of Sciences, Member  
2011, The Young Academy of Sweden, Member  
2011, IEEE IROS Best Cognitive Robotics Paper Award

2008, SSF Research Leader of the Future Award  
2007, IEEE RAS, Early Academic Career Award

#### **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

*Postdocs*: 23 (10 hold faculty positions (3 full professors); 7 group leaders in the industry)  
*PhD Theses*: 25 completed, 8 in progress  
*MSc Theses*: more than 50 supervised, examiner for ca 20 per year

#### **TEACHING ACTIVITIES (selection)**

Project course in Data science (Undergraduate, since 2019), Reinforcement learning, (PhD level, since 2017),  
Readings in Machine learning (PhD level, since 2016), Topics in Robotics (PhD level, since 2010), Topics in  
computer vision (PhD level, since 2014), Artificial Intelligence and Multiagent Systems, (Undergraduate, since  
2010), Image Processing and Computer Vision (Undergraduate 2004-2010), Artificial Intelligence (Undergraduate  
2004-2010), Machine Learning (Undergraduate 2005-2010).

#### **EDITORIAL BOARDS (selection):**

*Associate Editor*, Science Robotics from 2018  
*Associate Editor*, IEEE Transactions of Robotics, 2014-2016;  
*Associate Editor* of the International Journal of Social Robotics, 2013-present;  
*Member of the Editorial Board*, Robotics and Autonomous Systems, 2014-present

#### **ORGANISATION OF SCIENTIFIC MEETINGS (selection):**

*2019 Program co-Chair*, Conference on Robot learning  
*2016 General chair*, IEEE International Conference on Robotics and Automation  
*2015 Industry forum chair*, IEEE-RAS International Conference on Robotics and Automation  
*2015-2017 Chair of the steering committee*, IEEE Int. Conf. on Humanoid Robots  
*2014 Area Chair*, Computer Vision and Pattern Recognition  
*2008 - Organizational/program committee*: for IEEE ICRA, IEEE/RSJ IROS, Humanoids, RSS

#### **COMMISSIONS OF TRUST (academic, selection)**

2013 - 2022, Postdoc program, Chair, KK Foundation, Sweden  
2011 - 2022 Scientific Committee, Foundation Knut and Alice Wallenberg  
2013 - 2018 Max Planck Institute, Intelligent Systems: Scientific Advisory Board Member  
2015-2018 IEEE RAS Member Administrative Committee  
2012-2016 IEEE Robotics and Automation Awards Committee  
2012-2016 Research Policy Committee at the Royal Swedish Academy of Sciences  
2012-2016 STINT, Chair for Natural Sciences and Technology Expert Group  
2014 IEEE RAS Member Administrative Committee  
2010 - 2012 IEEE RAS Member Administrative Committee  
2006 - 2010 Chair, IEEE RAS TAB of Computer and Robot Vision  
2005 - 2010 Coordinator, Autonomous Systems undergraduate specialization, KTH  
2006 - IEEE RAS Conference Editorial Board

#### **Plenaries and Keynotes (selection since 2012 at leading conferences in robotics, control and AI)**

2022 IAS-17, Plenary; 2022 ICCAR, Plenary; 2022 ICARA, Plenary; 2021 ICMERR, Keynote; 2021 RCAE, Keynote; 2021  
ECC, Plenary; 2021 ICCRE, Keynote; 2020 ICME; Plenary; 2018 Conference on Robot Learning, CoRL, Plenary; 2018  
International Joint Conference on Artificial Intelligence, IJCAI, Plenary; 2017 ACM International Conference on Multimodal  
Interfaces, Plenary; 2017 Human Robot Interaction, HRI, Plenary; 2016 International Conference on Human-Centered  
Software Engineering, Keynote; 2015 IEEE International Conference on Automation Science, Plenary; 2015 IEEE  
International Conference on Robotics and Automation, Keynote; 2015 International Conference on Vision Systems, Plenary;  
2015 IEEE International Conference on Advanced Robotics, Plenary; 2014 The Royal Swedish Academy of Sciences, Annual  
keynote; 2013 Scandinavian Conference on Artificial Intelligence, Plenary; 2012 IFAC Symposium on Robot Control,  
Plenary

### Curriculum Vitae – Jana Tumova

**Research interests:** Autonomous robot decision-making, planning, and control, robot learning, robot safety, human-robot interaction



**Personal website:** <https://people.kth.se/~tumova/>

#### Education

- 2020: Docent, KTH Royal Institute of Technology
- 2013: PhD in Informatics, Masaryk University, Czech Republic
- 2009, 2006: M.Sc. and B.Sc. in Informatics, Masaryk University, Czech Republic.

#### Employment

- 2020-present: Associate professor, Division of Robotics, Perception and Learning, KTH EECS; maternity leave 8 months in 2021/2022
- 2016-2020: Assistant professor, Division of Robotics, Perception and Learning, KTH EECS; maternity leave 8 months in 2017
- 2013-2016: Postdoc, Division of Decision and Control Systems, KTH EECS

#### Visiting Positions

- Aug 2012: Singapore-MIT Alliance for Research and Technology
- Feb 2012 – May 2012: MIT CSAIL and LIDS
- Sep 2009 – Feb 2010, May 2011 – Aug 2011: Boston University

#### Selected academic excellence indicators and awards

- *Early Career Award* from Robotics Science and Systems Foundation 2021
- *VR Starting grant* 2018
- *Best student paper* (as a supervisor) at IV 2021, *best student paper finalist* (as a supervisor) at MRS 2021, *best conference award paper finalist* (as the last author) at CASE 2023
- ACCESS Linnaeus Centre *scholarship* in 2013 (selected as one of 4 winning candidates from over 130 applicants) and Masaryk University *Rector's Award for the Best Students in Doctoral Programmes* in 2013 (awarded to 4 PhD students in total in 2013). *Best paper award* at MEMICS 2011
- Some recent *keynotes*: RoMoCo 2024, FormaliSE 2022, NSV 2022, RSS 2021, FORMATS 2021; some recent *invited seminar talks*: University of Oxford Robotics Institute, University of Toronto Robotics Institute, ETH Zurich Autonomy talks series, Charles University, Vienna University of Technology, as well as Motional, Ericsson Research, Scania, or Swedish Defence Research Agency

#### Current Research Projects

- 2025-2028: PI, CoSy: CoSy: Minimal Assume-Guarantee Co-Synthesis for Robotics, VR *Research Project*
- 2023-2028: PI, InteRPlan: Integrated risk-aware planning and control, *WASP PhD student*
- 2023-2024: PI, Scavenger: Real-time logic based control for an autonomous scavenger robot, *Digital Futures Demonstrator Project*
- 2022-2027: PI, PerCorSo: Perceiving and Communicating Correct-by-design Socially Acceptable Autonomous Systems, *WASP NEST*
- 2022-2027: co-PI, Discover: Distributed Control in Weightless Environments, *WASP NEST*
- 2021-2025: PI, RawPlan: Risk-aware Spatio-temporal Planning *WASP PhD student*
- 2021-2025: PI, CoRe: Constrained reinforcement learning for network control, *SSF Industrial PhD student* with Ericsson
- 2021-2024: co-PI, Prosense: Proactive sensing for autonomous driving, *Vinnova*
- 2020-2024: co-PI, project leader, TECoSA: Trustworthy edge computing and applications, *Vinnova Competence Center*
- 2020-2024: PI, SitLearn: Situation Learning and Decision Making, *WASP Industrial PhD student* with Scania

#### Supervision (as the main supervisor)

- *Postdocs*: Chelsea Sidrane (PhD Stanford University, 2023- ), Anna Gautier (PhD Oxford University, 2023- ), Patrick Hammer (PhD Temple University, 2023- ), Christian Pek (PhD TUM, 2020- 2023), Alexis Linard (PhD Radboud University, 2019-2023)
- *Graduated PhD students*: Georg Schuppe (PhD 2023), Pouria Tajvar (PhD 2021), Fernando Dos Santos Barbosa (PhD 2021), Jesper Karlsson (PhD 2021)
- *Ongoing PhD students*: Truls Nyberg (industrial, Oct 2019-), Albin Larsson Forsberg (industrial, May 2020-), Matti Vahs (Nov 2021-), Kenneth Lau (industrial, Jan 2021-), Joris Verhagen (Sep 2022-), Rebecka Winqvist (Dec 2023-), Shaohang Han (Mar 2024-)

#### Selected Professional Appointments and Service

- *Academic leadership*: Associate Director Mobility, Digital Futures 2020-2021, International Advisory Board, Trusted Smart Systems (TSS) research profile area at Mälardalen University (MDU), 2024-
- *Organizing committee*: Co-organizer Dagstuhl seminar on Artificial Intelligence and Formal Methods Join Forces for Reliable Autonomy; Publication Chair ICRA 2022; Demo/Poster Chair ACM HSCC 2021; Co-organizer Lorentz Center workshop on Rigorous Automated Planning 2022; Chair, Future Digileaders 2019; Publicity co-chair ACM/IEEE ICCPS 2019; Co-chair RSS Pioneers 2018
- *Journal editorial boards*: Springer Autonomous Robots, 2024-present; Associate Editor, IEEE Robotics and Automation Letters, 2019-present
- *Conference editorial boards and program committees*: Senior Area Chair RSS 2025, Associate Editor ICRA 2023-2024, Area Chair RSS 2024, 2023 and 2020, CoRL 2022, Senior Program Committee AAMAS Robotics Track 2019, Associate Editor CASE 2017-2018, Co-organizer of an open invited track on Hybrid Control Synthesis for Multi-Robot Systems at IFAC WC 2017, an invited session on Formal Methods in Control at ACC 2014, and a workshop on Formal Engineering approaches to Software Components and Architectures; PC: HSCC 2015-2017, 2019-2021, ICCPS 2020-2021, IFAC ADHS 2018, ICARSC 2015-2019, RSS 2015; Regular reviewer for more than 10 conferences and 5 leading journals in robotics, computer science, and control
- *Expert reviewer assignments*: *PhD grading committee* member of 12 PhD students, *Licentiate opponent* of 3 theses, *Expert reviewer* for ERC Consolidator grants, Swiss National Science Foundation; *Panel member* for Finland Academy of Sciences, WWTF Vienna Austria
- *Memberships*: IEEE, IEEE RAS, IEEE CSS, IEEE Technical Committee on Hybrid Systems (TC website co-chair 2020-2023)

#### Teaching at KTH

- DD2380 Artificial Intelligence (course responsible, examiner, master-level course)
- DD2415 Safe Robot Planning and Control (course responsible, examiner, master-level course)
- Topics in Robotics: Planning, Topics in Robotics: Safe autonomy (lecturer, PhD-level courses)

#### 5 selected publications

1. M. Vahs, C. Pek, J. Tumova, "Belief control barrier functions for risk-aware control", IEEE Robotics and Automation Letters vol. 8, no. 12 (2023): 8565-8572.
2. D. Marta, S. Holk, C. Pek, J. Tumova and I. Leite, "VARIQuery: VAE Segment-Based Active Learning for Query Selection in Preference-Based Reinforcement Learning," *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Detroit, MI, USA, 2023, pp. 7878-7885
3. I. Mitsioni, P. Tajvar, D. Kragic, J. Tumova and C. Pek, "Safe Data-Driven Model Predictive Control of Systems With Complex Dynamics," in *IEEE Transactions on Robotics*, vol. 39, no. 4, pp. 3242-3258, 2023.
4. F. Barbosa, D. Duberg, P. Jensfelt, J. Tumova, "Guiding autonomous exploration with signal temporal logic," IEEE Robotics and Automation Letters 4, no. 4 (2019): 3332-3339.
5. J. Tumova, D. V. Dimarogonas, "Multi-Agent Planning under Local LTL Specifications and Event-Based Synchronization," *Automatica*, 2016.

**Google scholar profile:** <https://scholar.google.se/citations?user=ch9yS-QAAAAJ&hl=en>

As of December 2024, 2400+ citations, h-index 28.

## CV Ozan Öktem

### Positions/appointments/degrees

#### *Positions*

- 2024– Professor, Department of Mathematics, KTH.
- 2019– Visiting Researcher, Alan Turing Institute, London.

#### *Previous positions*

- 2022–2023 Associate Professor, Department of Mathematics, KTH.
- 2021–2022 Professor, Division of Scientific Computing, Department of Information Technology, Uppsala University, Uppsala
- 2014–2022 Research Associate, Department of Mathematics, KTH
- 2020–2021 Chaired Professor, School of Mathematical and Computer Sciences, Heriot-Watt University, Edinburgh
- 2018–2019 Rutherford Fellow, Alan Turing Institute, London
- 2016–2018 Director, KTH Life Science Research Platform, KTH
- 2009–2017 Strategic Coordinator, Center for Industrial and Applied Mathematics, KTH
- 2012–2016 Vice Director, KTH life science research platform KTH
- 2012–2013 Vice Director, Stockholm Mathematics Center, KTH
- 2009–2010 Application specialist, Comsol AB, Stockholm
- 2000–2009 Senior scientist, Research & Development, Sidec AB, Stockholm  
Sick leave between 50%–100% (2004–2006), parental leave 75% (2003)
- 1997–2000 Riskmanager, Riskmanagement, Swedbank AB, Stockholm  
Parental leave 50% (1998)

#### *Academic degrees/appointments*

- 2023-09-09 Professor in Numerical Analysis, KTH.
- 2021-06-01 Professor in Computational Science, Uppsala University.
- 2020-01-26 Professor in Actuarial Maths and Statistics, Heriot-Watt University, Edinburgh.
- 2012-04-04 Docent in Mathematics, KTH.
- 1999-09-17 PhD in Mathematics, Stockholm University.

### Grants, awards & prizes

Main applicant for grants totalling 35 MSEK (Sweden), 55 kGBP (UK), 20 kEUR (Germany). Co-applicant for grants totalling 19 MSEK (Sweden), 1720 kGBP (UK), 560 kEUR (Finland).

#### *Awards & prizes*

- 2017, 2021 Visiting scholar, Isaac Newton Institute for Mathematical Sciences
- 2018–2019 Rutherford Fellowship, Alan Turing Institute/University of Cambridge
- 2018 Gauss Professorship, Göttingen Academy of Sciences and Humanities
- 2009, 2011 J. Tinsley Oden Faculty Fellowship, ICES at UT Austin

### Selected commissions of trust

*Editorial board membership:* *SIAM Journal on Imaging Sciences, Inverse problems.*

*Role as external evaluator:* Evaluated applications to ERC advanced grant and Netherlands Organisation for Scientific Research. Assessed applications for Tenure Track and Associate Professor positions at Chinese Academy of Sciences, University of Twente, and University of Göttingen.

*Assignments as opponent:* Served as opponent at three PhD dissertations, external expert evaluator at two PhD dissertations, and member in the grading committee at six PhD dissertations.

*Membership in committees/scientific boards:*

- 2024 – Chair for Digital Futures Working Groups Learn
- 2024 – Founding member of EMS Topical Activity Group on Inverse Problems
- 2024 – Founding member of EMS Topical Activity Group on SciML
- 2023 – ELLIS member
- 2023 – Member of WASP Math/AI Management Board
- 2019 – Scientific Board for the *PET++* at University of Bath/University of Cambridge
- 2018–2021 Scientific Board for *Integrated AI-Diagnostics Initiative*
- 2017–2018 Member of MedTechLabs Management Board
- 2016–2020 Member of KTH–Philips Research Steering Committee
- 2015–2016 Represented KTH in EIT-Health partner assembly.
- 2014–2021 Representing KTH in the Swedish Network for Mathematics in Industry
- 2013–2017 Management Committee for EU COST Action (MP1207)
- 2009–2010 Industrial representative in *EU Forward Look on Mathematics and Industry*

**Summary of managerial responsibilities**

- 2014–2020 Representing KTH in the Swedish Network for Mathematics in Industry
- 2018–2020 Member of Scientific Board for *Integrated AI-Diagnostics Initiative*
- 2016–2018 Member of KTH–Philips Research Steering Committee
- 2017–2018 Member of *MedTechLabs* Management Board
- 2016–2018 Director for *KTH life science research platform*, Stockholm
- 2015–2016 Represented KTH in EIT-Health partner assembly.
- 2014–2020 Principal investigator for SSF grants AM13-0049 & ID14-0055.
- 2013–2017 Member of the Management Committee for EU COST Action (MP1207)
- 2012–2013 Vice Director, Stockholm mathematics centre (SMC), KTH/Stockholm University
- 2012–2016 Vice Director for *KTH life science research platform*, Stockholm
- 2009–2017 Strategic Coordinator, Center for Industrial and Applied Mathematics, KTH
- 2009–2010 Industrial representative in *EU Forward Look on Mathematics and Industry*

**Post-doctoral fellows and research associates**

I have hosted (and mentored) 16 post-doctoral fellows and 2 research associates.

**Supervision at doctoral (third cycle) level**

<i>Name</i>	<i>Role</i>	<i>School</i>	<i>Admission</i>	<i>Completion</i>
Axel Janson	Co-supervisor	KTH	2024-09-10	
Kim Lukas Kiehn	Co-supervisor	KTH	2024-04-05	
Paul Häusner	Co-supervisor	Uppsala University	2022-08-22	
Aurora Poggi	Main supervisor	KTH	2022-12-20	
Jonathan Krook	Main supervisor	KTH	2022-06-27	
Emanuel Ström	Co-supervisor	KTH	2021-09-24	
Jevgenija Rudzusika <sup>†</sup>	Main supervisor	KTH	2018-10-04	2025-03-17
Gustav Zickert	Co-supervisor	KTH	2015-10-19	2020-10-23
Jonas Adler	Main supervisor	KTH	2015-04-28	2019-10-31
Alexander Iakovlev	Co-supervisor*	KTH	2008-01-01	2014-06-16
Joel Andersson	Co-supervisor*	KTH	2009-01-01	2014-03-28

\* Industrial co-supervisor      † Was on parental leave

**Publications (as of 2024-11-12)**

> 90 peer-reviewed publications, 4339 citations (3834 since 2019), h-index 24 (22 since 2019), i10-index 45 (38 since 2019), 7 patents.

Google scholar: <https://scholar.google.com/citations?user=5ePHMfUAAAAJ>

ORCID: 0000-0002-1118-6483










# KTH internt beslut med e-signatur: kth-proj-0276016\_Beslut om ett strategiskt initiativ, KTH Center for AI

Slutgiltig revideringsrapport

2025-01-17

Skapad:	2025-01-16 (Centraleuropeisk tid)
Av:	Johan Schuber (jschuber@kth.se)
Status:	Signerat
Transaktions-ID:	CBJCHBCAABAAxCAKYjTw7oCmfdnbQpSpwYM-i1_iYQMK

## ”KTH internt beslut med e-signatur: kth-proj-0276016\_Beslut om ett strategiskt initiativ, KTH Center for AI” – historik

-  Dokumentet skapades av Johan Schuber (jschuber@kth.se)  
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