

Curriculum Vitae



Contact details

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Brief biography

Prof. dr. ir. Fernando Kuipers is full professor at the Delft University of Technology (TU Delft), where he chairs the Networked Systems group and leads the *Lab on Internet Science* (LOIS). His research revolves around understanding and improving the performance and reliability of Internet and communications infrastructures. Fernando obtained his Ph.D. degree *cum laude*, the highest possible distinction at TU Delft, and received several best paper awards or nominations for his work, including from IEEE INFOCOM, IFIP Networking, ITC, NetGames, and EuroGP. He also held visiting scholar positions at Technion (2009) and Columbia University (2016). Fernando is the scientific director and co-founder of the *Do IoT fieldlab*. He is also board member of the TU Delft Safety & Security institute. Previously, he was member of the program advisory board of SURFnet (2017-2018), board member of KIVI Telecom (2017-2018), co-founder and board member of PowerWeb (2012-2015), and chairman of the board of examiners (2008-2016). Internationally, Fernando was general co-chair of the tier-1 conference ACM SIGCOMM, editions 2021 and 2022. He currently serves as TPC co-chair of the tier-1 conference IEEE INFOCOM 2024 and is vice-chair of the SIGCOMM executive committee.

Academic degrees

- Sep. 2004 **Ph.D. cum laude** [the highest possible distinction]
Delft University of Technology
Thesis: *Quality of Service Routing in the Internet – Theory, Complexity and Algorithms*
Supervisor: Prof. Piet Van Mieghem
- Jun. 2000 **M.Sc.** [high thesis grade of 9 out of 10]
Delft University of Technology, Electrical Engineering
Thesis: *Hop-by-hop routing with QoS constraints*
- Dec. 1998 **B.Sc.**
Delft University of Technology, Electrical Engineering
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Employment

- Aug. 2021 – present **Full professor** Internet Science
TU Delft, Faculty of EEMCS, Dept. Software Technology
(Since Jan. 2023 chair of the Networked Systems group)
- Aug. 2010 – Aug. 2021 **Associate professor**
TU Delft, Faculty of EEMCS, Dept. Software Technology
(Until Jan. 2017 with Dept. Intelligent Systems)
- Sep. 2004 – Aug. 2010 **Assistant professor** (from Aug. 2006 with tenure)
TU Delft, Faculty of EEMCS, Dept. Telecommunications
- Sep. 2000 – Sep. 2004 **Ph.D. student**, TU Delft
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Research visits (≥ 2 weeks)

- Jun. 18 – 29, 2018 *Technical University of Munich, Germany*
Host: Prof. Wolfgang Kellerer
- Feb. 1 – July 31, 2016 *Columbia University, USA*
Host: Prof. Gil Zussman
- Sep. 15 – 26, 2014 *Ghent University, Belgium*
Host: Prof. Piet Demeester
- Jan. 26 – Mar. 26, 2009 *Technion, Israel*
Host: Prof. Ariel Orda
- Aug. 12 – Oct. 29, 1999 *Alcatel CRC, Belgium*
Host: Dr. Hans De Neve
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Professional responsibilitiesResponsibilities outside TU Delft

2022 – present	Co-founder and board member of the IPN SIG Future Computer Systems and Networking (https://ict-research.nl/groups/special-interest-groups/fcsn/) and steering committee member of the associated CompSys conference (https://www.compsys.science).
2021 – present	Board member and since June 2023 Vice Chair of the ACM SIGCOMM Executive Committee.
2021 – present	Member of the steering committee of the ACM, IRTF & ISOC Applied Networking Research Workshop (ANRW).
2019 – 2022	Vice-chair of the IFIP Working Group 6.2 on Network and Internetwork Architectures.
2009 – 2022	Board member of the IEEE Benelux chapter on communications and vehicular technology.
2017 – 2018	Board member of the program advisory board of SURFnet on connecting infrastructures.
2017 – 2018	Board member of the section Telecommunication of the Royal Netherlands Society of Engineers (KIVI).
2008	Member of the <i>Future Media and 3D Internet Task Force</i> of the European Union.

Responsibilities at TU Delft

2023 – present	Founding chair of the Networked Systems group (https://tudelft.nl/ewi/ns).
2019 – present	Board member of the Delft Safety & Security institute (https://www.tudelft.nl/tu-delft-safety-security-institute/).
2018 – present	Co-founder and scientific director of the Delft on internet-of-Things (Do IoT) fieldlab (https://doiotfieldlab.tudelftcampus.nl).
2011 – present	IEEE Counsellor of the IEEE Student Branch Delft.
2016 – 2021	India liaison w.r.t. our faculty's relations with India.
2020	Interim group leader of the Embedded and Networked Systems group during the 6-month sabbatical of Prof. Langendoen.
2008 – 2016	Chairman (and member since 2005) of the board of examiners for <i>Computer Engineering and Embedded Systems</i> (2008 – 2015) and <i>Electrical Engineering and Computer Engineering</i> (2015 – 2016).
2012 – 2015	Co-founder and board member of PowerWeb (http://powerweb.tudelft.nl/), a TU Delft research institute aiming to realize reliable smart grids.
2015 & 2009 & 2005	Interim group leader of the Network Architectures and Services (NAS) group during the 5-month sabbaticals of Prof. Van Mieghem.
2013 – 2014	Curriculum committee member. Our task was to outline the curriculum of a new bachelor programme on Energy.
2013	Curriculum committee member. Our task was to re-

2007 – 2009 evaluate the CS track on Media and Knowledge Engineering. **Curriculum committee** member. Our task was to benchmark and modernize the MSc programme Computer Engineering.

Awards and recognition

2015-9 I was awarded “Distinguished Member of the IEEE INFOCOM Technical Program Committee (TPC) in recognition to excellent service in that TPC” in the years from the inception of the award in 2015 till my last term in 2019.

2014 I was selected to participate in the TU Delft course on academic leadership from September 2014 – January 2015. This is a highly selective course for which only 18 persons (typically full professors and “upcoming” associate professors) from the entire university are selected each year.

2011 Elevated to senior member of the IEEE.

2004 Ph.D. degree *cum laude*: the highest possible distinction.

Distinguished papers

2017 Nominated (top 4) for the best paper award at EuroGP 2017.

2015 **Best paper award** at NetGames 2015.

2014 Nominated (top 3) for the best paper award at IEEE JISIC 2014. The corresponding paper “DNSSEC Misconfigurations: How incorrectly configured security leads to unreachability” was also nominated for the Dutch Cyber Security best recent research paper award.

2009 Nominated (top 3) for the best paper award at ITC 2009.

2008 **Best paper award** at IEEE ISM 2008.

2008 **Best paper award** at IEEE FMN 2008.

2008 Nominated (top 4) for best paper award at IFIP Networking 2008.

2006 **Best paper award** at CHINACOM 2006.

2003 Nominated (top 10) for best paper award at IEEE INFOCOM 2003.

Scientific Activities

Research grants

Source	Topic	Time frame	Funding
NGF	<i>6G Future Network Service</i>	2023 – 2030	203 M€ in total (25 M€ for TU Delft)
NWO	<i>Responsible Internet</i>	2021 – 2025	1 PhD student
KPN	<i>Self-driving networks</i>	2019 – 2025	1 PhD student
EFRO	<i>Do IoT Fieldlab</i>	2020 – 2023	1.5 M€
TU Delft – IISc	<i>Tactile Internet</i>	2016 – 2022	1 PhD student at TU Delft & 1 at IISc (co-supervision)
MRDH	<i>Preparations for a 5G Fieldlab</i>	2019 – 2020	200 k€
SURFnet	<i>Each year, I secured funding.</i>	2008 – 2020	1.1 M€

	<i>Topics: optical network planning, software-defined networking, network resilience, multi-domain routing, and energy efficiency.</i>		
Alliander	<i>Robust energy networks</i>	2013 – 2017	1 PhD student
TU Delft (PowerWeb)	<i>Smart grid control</i>	2012 – 2016	1 PhD student
ENISA	<i>Good Practices for Resilient Internet Interconnections</i>	2011	58 k€
TRAIL	<i>Multi-constrained Context-Aware Route Planning</i>	2009	50 k€

Additional research projects and grants

Source	Topic	Time frame	Budget for TU Delft
EU Horizon SNS	<i>6G (Origami project)</i>	2024 – 2027	250 k€
Erasmus+	<i>Future Network Academy</i>	2023 – 2025	61 k€
Cognizant	<i>Tactile Internet</i>	2019 – 2021	3-yr Postdoc
EU NoE project	<i>European Internet Science (EINS)</i>	2012 – 2014	115 k€
Next Generation Infrastructures foundation	<i>Robustness and Optimization of Complex Networks</i>	2009 – 2012	427 k€
EU NoE project	<i>Content distribution (CONTENT)</i>	2006 – 2009	102 k€
STW	<i>Network Dynamics & QoS</i>	2004 – 2009	419 k€
SURFnet	<i>Routing and wavelength assignment</i>	2005 – 2007	200 k€
EU NoE project	<i>Emerging Network Technologies (E-Next)</i>	2004 – 2006	384 k€

Invited talks (selected)

- *LoRa's Jambalaya*
Keynote at [inforTechDay](#), May 20, 2019.
- *Sentient Networking*
Keynote at the [Cisco Connect & Secure conference](#), March 14, 2019.
- *A Softwarized Internet of Touch*
Invited talk at the [Kivi Telecom lecture](#) on SDN, February 12, 2019.
- *Security Vulnerabilities in LoRaWAN*
Invited talk at the 7th [Van de Meulen Seminar](#), April 12, 2018.
- *Go Long... Range*
Invited talk at [ICT.Open](#), March 20, 2018.
- *An academic perspective on LoRaWAN*
Keynote at [The Things Conference](#), February 2, 2018.
- *ThingPot: an interactive Internet-of-Things honeypot*
Invited talk at the [Joint CTTE and CMI conference](#), November 23, 2017.
- *To Peer or not to Peer? That's the question!*
Invited talk at the [NoE CONTENT industry workshop](#) on Content Distribution

Networks, February 19, 2008.

Conference organization (selected)

2023/24	TPC co-chair of IEEE INFOCOM 2024.
2021/22	General co-chair of ACM SIGCOMM 2022.
2020/21	General co-chair of ACM SIGCOMM 2021.
2020	PhD Forum co-chair of IEEE ICNP 2020.
2018	TPC co-chair of IFIP Networking 2018.
2017	Finance chair of ACM SenSys 2017.
2014	General chair of IEEE SCVT 2014.
2014	Member of the local organizing committee of the IEEE Sections Congress 2014.
2012	TPC co-chair (with Prof. Poul Heegaard) of IFIP IWSOS 2012.
2009	TPC track co-chair (with Prof. Jörg Ott) of the track “Multimedia and QoS” for IEEE ICCCN 2009.

Reviewing activities (selected)

In addition to having reviewed articles for many top journals (among which IEEE/ACM Transactions on Networking, IEEE JSAC, and IEEE Communications Magazine) and having served in the TPC of many conferences (e.g., IEEE INFOCOM, IFIP Networking, and IEEE ICNP), I have also acted as reviewer of proposals submitted to the Netherlands Organisation for Scientific Research (NWO), the Israel Science Foundation, the Belgium agency for Innovation by Science and Technology, the Cyprus Research Promotion Foundation, the King Abdullah University of Science and Technology (KAUST), and the Slovenian Research Agency (SRA). For NWO and SRA, I also appeared in review panels.

Other scientific activities

- I have participated in the EU COST Action CA 15127 on “Resilient communication services protecting end-user applications from disaster-based failures (RECODIS).
 - I have participated in the EU Network of Excellence E-Net.
 - I have participated in the EU COST 263 action on Quality of Future Internet Services.
 - I have participated in the Dagstuhl workshop on “Benchmarking of Future Content Distribution: Exploring the Limits of Self-organization?” August 26-29, 2008.
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Academic activities**Courses and teaching experience**

Nov. 2015 – present	<i>High-Performance Data Networking</i> : MSc course, responsible & founding lecturer. The course combines theory & practice.
Feb. 2007 – present	<i>Measuring and Simulating the Internet</i> : MSc course, responsible lecturer. I set up this course to teach students how to perform research. It was one of the first project-based courses in the faculty.
Sep. 2010 – Aug. 2017	<i>Telecommunication Networks</i> : BSc course, responsible lecturer. In 2015, I developed various Mininet/Wireshark exercises for the course.

Sep. 2004 – Aug. 2009 & October 2014	<i>Advances in Networking</i> : MSc course, responsible lecturer.
Sep. 2010 – Aug. 2012	<i>Complex Networks</i> : MSc course, co-lecturer. My part consisted of introducing the students to algorithmic techniques suitable for complex networks.
2007	<i>Ethics and Technology</i> : BSc course, co-lecturer.
2002 – 2005	<i>Performance Analysis</i> : MSc course, creating and correcting homework exercises.

Education-related projects

Academic year 2010/2011	Recipient of a grant of 1,000 Euros for the TU Delft Grassroots proposal “Peer evaluation.”
Academic year 2007/2008	Recipient of a grant of 1,000 Euros for the TU Delft Grassroots proposal “Wiki meets YouTube.”

PhD and MSc students supervised

I have guided > 65 M.Sc. thesis students. Moreover, I am or have been the supervisor of the following Ph.D. students:

Name	Topic	(Expected) Graduation date	First employment after PhD
Adrian Zapletal	<i>Responsible Internet</i>	2026	-
Chenxing Ji	<i>Self-driving networks</i>	2025	-
Jorik Oostenbrink	<i>Spatiotemporal network resilience</i>	Feb. 2023	TU Delft
Belma Turkovic	<i>Tactile Internet</i>	Oct. 2022	TNO
Hale Çetinay	<i>Analysis and planning of power grids: A network perspective</i>	Oct. 2018	Leiden University
Marcus Märtens	<i>Information Propagation in Complex Networks</i>	Jan. 2018	ESA
Niels van Adrichem	<i>Resilience and Application Deployment in Software-Defined Networks</i>	Feb. 2017	TNO
Muhammad Al Farabi	<i>Routing and Disaster Awareness in Optical Networks</i>	Sep. 2016	Universiti Teknologi Malaysia
Song Yang	<i>Routing in Optical and Stochastic Networks</i>	Jun. 2015	University of Göttingen
Ruud van de Bovenkamp	<i>Epidemic Processes on Complex Networks</i>	Jan. 2015	KPN

Ebisa Negeri	<i>Smart Power Grid: A Holonic Approach</i>	Apr. 2014	Greeniant
Anteneh Beshir	<i>Survivability and Impairment-aware Routing in Optical Networks</i>	Apr. 2011	Profit consulting
Yue Lu	<i>Analysis of streaming media systems</i>	Oct. 2010	Vodafone
Adriaan ter Mors	<i>Multi-agent route planning</i>	Mar. 2010	Delft University of Technology

PhD committees

In addition to having served as a member of the PhD committees of the PhD students I have supervised, I have also been a member of the PhD committees of:

Jean-Romain Luttringer *Path Computation Algorithms in IP Networks: Reliable Hot-Potato Routing & Deployable Multi-Constrained Tunnels*, University of Strasbourg, November 2022.

Prashant Joshi *Dependable Network Topologies*, TU Delft, October 2019.

Bogdan Mihai *SDN/NFV Control Plane Optimization for Fixed-Mobile Access and Data Center Optical Networking*, Technical University of Denmark, November 2017.

Diego Montero *Novel Architectures and Strategies for Security Offloading*, Universitat Politècnica de Catalunya, November 2017.

Marco Cattani *Opportunistic Communication in Extreme Wireless Sensor Networks*, TU Delft, September 2016.

Siqi Shen *Massivizing Networked Virtual Environments on Clouds*, TU Delft, April 2015.

Stefan Aust *Advanced Wireless Local Area Networks in the Unlicensed Sub-1GHz ISM-bands*, TU Delft, October 2014.

Alia Bellabas *Routage Multicast avec Qualité de Service sous Plusieurs Contraintes*, Université de Rennes, October 2011.

Other academic achievements

- Recipient, on Jun. 21st, 2006, of a BKO certificate for “Didactical Skills in teaching at the University.”
 - English language test, taken on Mar. 7th, 2007, indicated a CEF level C2, which is the highest attainable level.
 - I have followed the course “promoter as coach,” 6 days from Sep. 2009 till Jan. 2010.
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Bibliometrics and publications

Bibliometrics¹

Among the bibliometric tools available, Google Scholar (GS) seems to provide better coverage for computer science than tools like Elsevier Scopus and Thompson-Reuters Web of Science. According to Google Scholar, I (per the date of this CV) have an **H-index of 45** and **7,189 citations** to my papers.

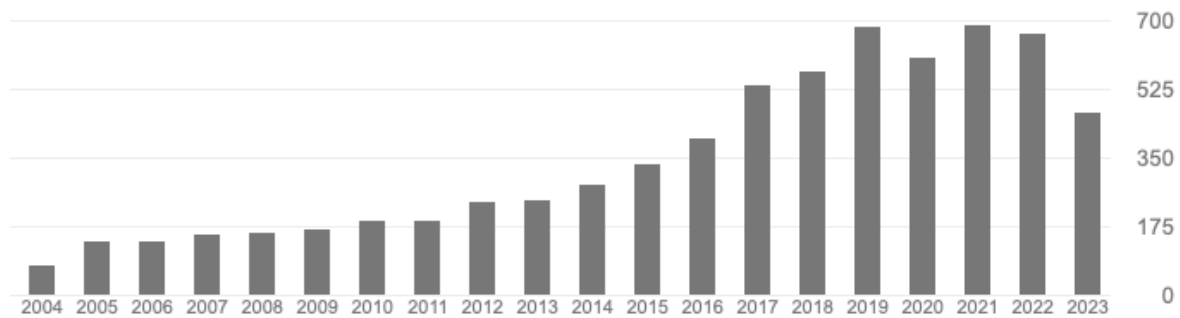


Figure 1. Citations per year according to GS. Last year depicted here is incomplete.

Publications

I have published with > 100 co-authors work of high quality, as shown by inclusion in the DBLP curated database http://dblp.uni-trier.de/pers/hd/k/Kuipers:Fernando_A.

There is no univocal ranking of all networking conferences and journals, but there are lists that can be consulted, e.g.:

- The CORE ranking² classifies conferences (and similarly journals) according to: A* “flagship conference, a leading venue”, A “excellent conference, and highly respected”, B “good conference, and well regarded”, C “other ranked conference venues that meet minimum standards”.
- <https://www.cs.ucsb.edu/~almeroth/conf/stats/> provides an overview of the acceptance ratios for networking conferences.

The CORE ranking may miss or undervalue young conferences and journals. In the following, I have combined the aforementioned lists and either follow the CORE ranking or adopt the CORE notation as follows: A* ~20% and A-rank ~25% acceptance ratio.

Selected publications

- A. Zapletal and F.A. Kuipers, Slowdown as a Metric for Congestion Control Fairness, Proc. of the 22nd ACM Workshop on Hot Topics in Networks (ACM HotNets 2023), Boston, USA, November 28-29, 2023.
A* workshop. We propose a novel stance on congestion control fairness for a responsible Internet and a metric to evaluate it.
- T. Fiebig, S. Gürses, C.H. Gañán, E. Kotkamp, F.A. Kuipers, M. Lindorfer, M. Prisse, and T. Sari, “Heads in the Clouds? Measuring Universities' Migration to Public Clouds: Implications for Privacy & Academic Freedom,” Proc. of PoPETS 2023.
A-rank conference. We perform a longitudinal study of the migration to public clouds among

¹ Bibliometrics are included here because they are still commonly discussed, but they should be interpreted with care (if used at all).

² <http://www.core.edu.au/conference-portal>

universities in the U.S. and Europe, as well as institutions listed in the Times Higher Education Top100, between January 2015 and October 2022.

- B. Hiao, S. Yang, F.A. Kuipers, L. Jiao, and X. Fu, “EAVS: Edge-assisted Adaptive Video Streaming with Fine-grained Serverless Pipelines,” Proc. of IEEE INFOCOM 2023.
A* conference. We propose an edge-assisted adaptive video streaming system based on serverless pipelines and deep reinforcement learning.
- J. Oostenbrink and F.A. Kuipers, “A Global Study of the Risk of Earthquakes to IXPs,” Proc. of IFIP Networking 2022.
A-rank conference. We study the risk of earthquakes to global Internet infrastructure, namely Internet eXchange Point (IXP) facilities.
- K. Polachan, J. Pal, C. Singh, T.V. Prabhakar, and F.A. Kuipers, TCPSbed: A Modular Testbed for Tactile Internet based Cyber-Physical Systems, IEEE/ACM Transactions on Networking, vol. 30, no. 2, April 2022.
A* journal. We develop TCPSbed, a modular testbed for Tactile internet based Cyber-Physical Systems (TCPS).
- B. Vass, J. Tapolcai, Z. Heszberger, J. Biro, D. Hay, F.A. Kuipers, J. Oostenbrink, A. Valentini, and L. Ronyai, Probabilistic Shared Risk Link Groups Modelling Correlated Resource Failures Caused by Disasters, IEEE Journal on Selected Areas in Communications, vol. 39, no. 9, September 2021.
A* journal. We build a stochastic model of geographically correlated link failures caused by disasters to estimate the hazards a network may be prone to and to understand the complex correlation between possible link failures.
- B. Turkovic, S. Nijhuis, and F.A. Kuipers, “Elastic Slicing in Programmable Networks,” Proc. of IEEE NetSoft 2021.
A* conference. Through P4, we develop a custom scaling protocol and framework that can, with negligible delay, scale network slices/functions.
- J. Oostenbrink and F.A. Kuipers, “Going the Extra Mile with Disaster-Aware Network Augmentation,” Proc. of IEEE INFOCOM 2021.
A* conference. Using actual seismic hazard data, we demonstrate that by applying our algorithms, network operators can cost-efficiently improve the resilience of their network.
- B. Turkovic and F.A. Kuipers, “P4air: Increasing Fairness among Competing Congestion Control Algorithms,” Proc. of IEEE ICNP 2020.
A* conference. Through P4, we create an in-network control measure that makes sure that different types of congestion control algorithms can coexist fairly, without over-powering each other.
- B. Turkovic, J. Oostenbrink, F.A. Kuipers, I. Keslassy, and A. Orda, “*Sequential Zeroing: Online Heavy-Hitter Detection on Programmable Hardware*,” Proc. of IFIP Networking 2020.
A-rank conference. We present a tailor-made algorithm – for the heavy-hitter problem – that can be implemented on programmable hardware.
- J. Oostenbrink and F.A. Kuipers, “*The Risk of Successive Disasters: A Blow-by-Blow Network Vulnerability Analysis*,” Proc. of IFIP Networking 2019.
A-rank conference. The first work to model network vulnerability to multiple successive disasters
- S. Demetri, M. Zuniga, G.P. Picco, F.A. Kuipers, L. Bruzzone, and T. Telkamp, “*Automated Estimation of Link Quality for LoRa: A Remote Sensing Approach*,” Proc. of ACM/IEEE IPSN 2019.
A* conference. Use of machine learning to predict LoRa radio channel propagation.
- X. Wang, E. Karampatzakis, C. Doerr, and F.A. Kuipers, “*Security Vulnerabilities in LoRaWAN*,” Proc. of ACM/IEEE IoTDI 2018.
A-rank conference. Systematic study to the security vulnerabilities of LoRaWAN.
- J. Tapolcai, B. Vass, Z. Heszberger, J. Biro, D. Hay, F.A. Kuipers, and L. Ronyai, “*A Tractable Stochastic Model of Correlated Link Failures Caused by Disasters*,” Proc. of IEEE INFOCOM 2018.
A* conference. A model to analyse the vulnerability of networks to geographic failures.

- M. Märtens, F.A. Kuipers, and P. Van Mieghem, “*Symbolic Regression on Network Properties*,” Proc. of EuroGP 2017.
A-rank conference. **Nominated for best paper award**. Use of genetic programming to evolve formulas for network properties.
- M. Märtens, S. Shen, A. Iosup, and F.A. Kuipers, “*Toxicity Detection in Multiplayer Online Games*,” Proc. of NetGames 2015.
Best paper award. An annotation system for chats of multiplayer online games that can be used for detecting toxicity (i.e., hostile language).
- N. van Adrichem and F.A. Kuipers, “*NDNFlow: Software-Defined Named Data Networking*,” Proc. of IEEE NetSoft 2015.
A* conference. First paper on Named Data Networking through programmable networks.
- M.P.V. Manthana, N. van Adrichem, C. van den Broek, and F.A. Kuipers, “*An SDN-based Architecture for Network-as-a-Service*,” Proc. of IEEE NetSoft 2015.
A* conference. An approach to allow programmable and legacy network devices join forces.
- S. Trajanovski, F.A. Kuipers, A. Ilic, J. Crowcroft, and P. Van Mieghem, “*Finding critical regions and region-disjoint paths in a network*,” IEEE/ACM Transactions on Networking, vol. 23, no. 3, pp. 908-921, June 2015.
A* journal. Prior to this work, network resilience articles – more often than not –disregarded the geographical information about a network. This paper provides a geographic perspective to network resilience. In later work, I also added the dimension of time, thereby creating the novel field of spatiotemporal network resilience.
- F.A. Kuipers, S. Yang, S. Trajanovski, and A. Orda, “*Constrained Maximum Flow in Stochastic Networks*,” Proc. of IEEE ICNP 2014.
A* conference. Algorithms for finding flows in stochastic networks.
- C. Doerr and F.A. Kuipers, “*All quiet on the Internet front?*”, IEEE Communications Magazine, vol. 52, no. 10, pp. 46-51, Oct. 2014.
A* magazine. Over several years we performed a literature survey and interviews on the fragility of the Internet. This article presents our taxonomy of types and causes of Internet failures.
- N. van Adrichem, A. Reyes Lúa, X. Wang, M. Wasif, F. Fatturrahman, and F.A. Kuipers, “*DNSSEC Misconfigurations: How incorrectly configured security leads to unreachability*,” Proc. of IEEE JISIC 2014.
(1) **Nominated for the best paper award** (top 3), (2) **fast-tracked** to the Security Informatics journal and (3) **nominated for the Dutch Cyber Security best recent Research paper Award**. The article is an extensive measurement-based evaluation of how the secure DNSSEC protocol is used in the field. It turns out, due to its complexity, that DNSSEC is often misconfigured, leading to a false sense of security.
- N. van Adrichem, B. van Asten, and F.A. Kuipers, “*Fast Recovery in Software-Defined Networks*,” Proc. of EWSDN 2014.
First paper to enable sub-50ms (the threshold for carrier-grade resiliency) fast failover.
- N. van Adrichem, C. Doerr, and F.A. Kuipers, “*OpenNetMon: Network Monitoring in OpenFlow Software-Defined Networks*,” Proc. of IEEE/IFIP NOMS 2014.
We were the first to provide a tool to measure bandwidth, delay, and packet loss, in programmable networks.
- S. Yang and F.A. Kuipers, “*Traffic Uncertainty Models in Network Planning*,” IEEE Communications Magazine, vol. 52, no. 2, pp. 172-177, Feb. 2014.
A* magazine. Overview of several traffic uncertainty models useful for network planning.
- F.A. Kuipers, A.A. Beshir, A. Orda, and P. Van Mieghem, “*Impairment-aware Path Selection and Regenerator Placement in Translucent Optical Networks*,” Proc. of IEEE ICNP 2010.
A* conference. Algorithms for dealing with optical impairments in translucent networks.
- A.A. Beshir, F.A. Kuipers, A. Orda, and P. Van Mieghem, “*On-line Survivable Routing in WDM Networks*,” Proc. of ITC 21, 2009.
Nominated for best paper award. Algorithms for online survivable routing and wavelength assignment.

- Y. Lu, J.D.D. Mol, F.A. Kuipers, and P. Van Mieghem, “Analytical Model for Mesh-based P2PVoD,” Proc. of IEEE ISM 2008.
Best paper award. The first analytical work to model mesh-based P2PVoD.
- Fallica, Y. Lu, F.A. Kuipers, R. Kooij, and P. Van Mieghem, “On the Quality of Experience of SopCast,” Proc. of IEEE FMN 2008.
Best paper award and **fast-tracked** to Int. J. Internet Protocol Technology. A measurement study of a P2PTV application called SopCast.
- Y. Lu, F.A. Kuipers, M. Janic, and P. Van Mieghem, “E2E blocking probability of IPTV and P2PTV,” Proc. of IFIP Networking 2008.
A-rank conference. **Nominated for best paper award.** A comparison of content blocking in IPTV and P2PTV.
- F.A. Kuipers, “QoS protocol and algorithm join forces,” Proc. of CHINACOM 2006.
Best-paper award. This paper is the first to illustrate that protocols and algorithms can reinforce each other if carefully configured.
- F.A. Kuipers, H. Wang, and P. Van Mieghem, “The Stability of Paths in a Dynamic Network,” Proc. of CoNext 2005.
A* conference. Understanding how small link-weight perturbations can change shortest network paths.
- P. Van Mieghem and F.A. Kuipers, “Concepts of Exact Quality of Service Algorithms,” IEEE/ACM Transactions on Networking, vol. 12, no. 5, pp. 851-864, Oct. 2004.
A* journal. An exact algorithm called SAMCRA for Quality-of-Service routing.
- F.A. Kuipers and P. Van Mieghem, “The Impact of Correlated Link Weights on QoS Routing,” Proc. of IEEE INFOCOM 2003.
A* conference. Nominated for best paper award and **fast-tracked** to IEEE/ACM Transactions on Networking. I provided an in-depth investigation of the complexity of the NP-hard Quality-of-Service routing problem. I showed that only in certain conditions the problem is truly hard.
- F.A. Kuipers, T. Korkmaz, M. Krunz and P. Van Mieghem, “An Overview of Constraint-Based Path Selection Algorithms for QoS Routing,” IEEE Communications Magazine, vol. 40, no. 12, pp. 50-55, Dec. 2002.
A* magazine. Overview of QoS routing algorithms.
- P. Van Mieghem, H. De Neve and F.A. Kuipers, “Hop-by-hop Quality of Service Routing,” Computer Networks, vol. 37/3-4, pp. 407-423, Nov. 2001.
My first journal publication, based on my MSc thesis work.
- F.A. Kuipers and P. Van Mieghem, “QoS Routing: Average Complexity and Hopcount in m dimensions,” Proc. of QoSIS 2001.
My first conference publication (and presentation).

My complete list of publications is available – *as open access* – via TU Delft’s Research Information Portal: <https://research.tudelft.nl/en/persons/fa-kuipers/publications/>.

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