Andrey Belogaev, PhD in Wireless Communications

Postdoctoral Researcher @ IDLab, UAntwerpen-imec

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Website | Google Scholar | Linkedin

PROFESSIONAL PROFILE

- Hands-on **10 years'** experience of research in the area of wireless networks. Analytical and simulation modeling of modern wireless communication systems (5G-NR/6G, Wi-Fi) at PHY, MAC and higher layers (IP, TCP/UDP/QUIC).
- Management of R&D bilateral projects with industrial partners. **Task lead** in multiple regional and European projects (Horizon Europe, ICON, FWO). **Organizing committees**: TPC Chair at IEEE ICC, ICCC, BlackSeaCom 2025; Faculty of Science Research Day at UAntwerpen; Session Chair at WCNC 2024.
- Developed novel algorithms for cutting-edge wireless technologies and services, including Wi-Fi 7/8, 5G-NR/6G, URLLC, V2X, massive MIMO. Defended PhD on QoS provisioning methods for intelligent transportation systems. Prepared and published **15+ articles** in scientific journals (including Q1) and proceedings of respected scientific conferences.
- Designed and implemented user quality of experience enhancing solutions for cellular and local area wireless networks in **5+ different industrial projects**. Three of the projects achieved Huawei Best Cooperation Project awards.
- (Co-)developed and taught **3 new practical courses** for BS and MS students on network modeling and probability theory. Supervised 2 MS students, and currently (co-)supervising 2 PhD students and 1 MS student.

WORK EXPERIENCE

- **Postdoctoral Researcher** **IDLab @ UAntwerpen-imec**
  2022 – pres. (https://www.uantwerpen.be/en/research-groups/idlab/)

  Conducting research in multiple projects with different industrial and research partners. **10 papers** in proceedings of international conferences and journals (IEEE Wireless ComMag, WoWMoM, WCNC, EuCNC, PIMRC, …), and several more are currently submitted or being prepared.

  Co-supervision of **2 PhD students** on topics "Scalable low-latency communication in dense robot swarm**"** and "Deterministic wireless networks in unpredictable industrial environments". Co-supervision of **1 MS student** on topic "Experimental Study of OFDMA Usage and Energy Efficiency in Modern Wi-Fi Commercial Devices".

  Teaching **practical sessions** and giving **2 lectures** (on TCP and routing) for BS "Computer Networks". Improved and developed the lab descriptions, developed new NS-3 lab for modeling wireless networks. Developed a GUI tool to visualize packet transmissions in IPMininet (forked from MiniNAM).

- **Senior Researcher** **Wireless Networks Lab @ IITP RAS**
  2014 – 2022 (http://wireless.iitp.ru/)
  Early positions: Research Assistant, Junior Researcher, Researcher

  Published 10+ works in scientific journals and conference proceedings.

  Developed novel mathematical and simulation models, solutions and algorithms in different industrial projects, 3 of which are awarded by industrial partner.

  Supervised 2 MS students on topics “Transmission parameters selection for uplink grant-free access in 5G systems” and “Energy-efficient offloading of computing tasks in intelligent transportation systems”.

- **Senior Lecturer** **Higher School of Economics**
  2019 – 2019 (https://www.hse.ru/)

  Practical classes on Probability Theory for 2nd year BS students

- **Lecturer** **Moscow Institute of Physics and Technology** (https://mipt.ru/)
  2018 – pres. **Moscow State University (**https://www.msu.ru/)

  Developed courses “Network Modeling Basics”, “Modeling of Modern Networks”.
- **Intern** **Computer Vision Lab @ IITP RAS**
  2013 - 2014 (http://iitp.ru/en/researchlabs/281.htm)

  Has developed fast algorithm for detection of orthotropic edge detection.

EDUCATION

- **PhD student** **Moscow Institute of Physics and Technology**
  2016 – 2020 (https://mipt.ru/)

  Specialization: Telecommunication systems, networks and devices

  Thesis: Research and Development of Quality of Service Provisioning Methods in Intelligent Transportation Systems Networks.

  Supervisor: Artem Krasilov (Scopus AuthorID, ReseacherID, Google Scholar)

- **Master student** **Moscow Institute of Physics and Technology**
  2014 – 2016 (https://mipt.ru/)

  MS in Applied Physics and Mathematics

  Thesis: Analysis of the Algorithms for Reservations Information Dissemination in Wi-Fi Mesh Networks.

  Supervisor: Artem Krasilov (Scopus AuthorID, ReseacherID, Google Scholar)

- **Bachelor student** **Moscow Institute of Physics and Technology**
  2010 – 2014 (https://mipt.ru/)

  BS in Applied Physics and Mathematics. Graduated with honors.

  Thesis: Orthotropic Edge Detection Algorithm and its Application to Automatic Transport Classification in Video Stream

  Supervisor: Dmitry Nikolaev (Scopus AuthorID, ResearcherID, Google Scholar)

LIST OF LATEST PUBLICATIONS

1. E.A. Beyazit, M. Beyazit, **A. Belogaev**, M. Botero, and J. Famaey, "Multi-Stream Allocation in Semi-Coherent Cell-Free MU-MIMO Systems" // *in Proc. of IEEE PIMRC 2025, Istanbul, Turkey* (accepted)
2. D.D. Agbeve, **A. Belogaev**, and J. Famaey, "Design and Evaluation of IEEE 802.11ax Uplink Orthogonal Frequency Division Multiple Random Access in ns-3" // *in Proc. of ICNS3, Osaka, Japan, 2025*, doi: 10.1145/3747204.3747224
3. S. Faye, P. Soto, G. Volpe, A.Z. Hindi, B. Hensel, G. Castellanos, I. Turkanu, C. Sommer, S.-M. Senouchi, **A. Belogaev**, and M.C. Botero, "A Functional Framework for Network Digital Twins" // *in Proc. of EuCNC, Poznan, Poland, 2025,* doi: 10.1109/EuCNC/6GSummit63408.2025.11036908
4. W. Lemoine, N. N. Bhat, J. Struye, **A. Belogaev**, J.O. Lacruz, J. Widmer, and J. Famaey, "Distributed Inference for Human Pose Estimation Using mmWave Wi-Fi" // *in Proc. of IEEE WoWMoM, Texas, 2025,* doi: 10.1109/WoWMoM65615.2025.00031
5. R.S. Vital, **A. Belogaev**, C. Gomez, J. Famaey, and E. Garcia-Villegas, "A Primer on AP Power Save in Wi-Fi 8: Overview, Analysis, and Open Challenges" // *Wireless Communications Magazine, 2025*, doi: 10.1109/MCOM.004.2400486
6. D.D. Agbeve, **A. Belogaev**, W. Sandra, C. Lylon, and J. Famaey, "A2P: A Scalable OFDMA Polling Algorithm for Time-Sensitive Wi-Fi Networks" // *in Proc. of IEEE WCNC 2025, Milan, Italy*, doi: 10.1109/WCNC61545.2025.10978627
7. **A. Belogaev**, X. Shen, C. Pan, X. Jiang, C. Blondia, and J. Famaey, "Dedicated Restricted Target Wake Time for Real-Time Applications in Wi-Fi 7" // *in Proc. of IEEE WCNC 2024, Dubai, UAE*, doi: 10.1109/WCNC57260.2024.10571278
8. B. Fang, J. Oostvogels, X. Liu, **A. Belogaev**, S. Michiels, J. Famaey, and D. Hughes, "ABL: Leveraging Millimeter Wave Pulses for Low Latency IoT Networking," // *in Proc. of CrystalFreeIoT 2024*, doi: 10.1109/CrystalFreeIoT62484.2024.00010
9. X. Liu, **A. Belogaev**, J. Oostvogels, B. Fang, D. Hughes, M. Weyn, and J. Famaey, "Low-latency Symbol-Synchronous Communication for Multi-hop Sensor Networks," // *in Proc. of EuCNC 2024, Belgium*, doi: EuCNC/6GSummit60053.2024.10597026
10. M. Liu, B. Fang, J. Oostvogels, S. Michiels, **A. Belogaev**, X. Liu, J. Famaey, D. Hughes, "CAIN: Low Power and Low Latency VHF Mesh Networking," // *in Proc. of EWSN 2024, Abu Dhabi, UAE,* paper
11. A. Shashin, **A. Belogaev**, A. Krasilov, and E. Khorov, "Adaptive Parameters Selection for Uplink Grant-Free URLLC Transmission in 5G Systems" // *Computer Networks, vol. 222, p. 109527, 2023,* doi: 10.1016/j.comnet.2022.109527
12. **A. Belogaev**, A. Elokhin, A. Krasilov, E. Khorov and I. F. Akyildiz, "Cost-Effective V2X Task Offloading in MEC-Assisted Intelligent Transportation Systems" // *IEEE Access, vol. 8, pp. 169010-169023, 2020*, doi: 10.1109/ACCESS.2020.3023263
13. **A. Belogaev**, E. Khorov, A. Krasilov, D. Shmelkin, and S. Tang, "Conservative Link Adaptation for Ultra Reliable Low Latency Communications" // *in Proc. of IEEE BlackSeaCom 2019, Sochi, Russia*, doi: 10.1109/BlackSeaCom.2019.8812824