Huanzhuo **Wu**

5G/6G Researcher · Network Architecture

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Chinese (Native C2), English (Proficient C1), German (Conversational B2)

Profile

I am a 5G/6G researcher at Nokia Standards in Munich, specializing in 3GPP network architecture with dedicated focus on the IP Multimedia Subsystem (IMS), Artificial Intelligence/Machine Learning (AI/ML)-driven data collection, edge computing, and end-to-end user plane design. My work centers on driving innovation for next-generation mobile networks, contributing to major 3GPP study and work items, and leading back-office coordination. I hold a PhD in Electrical Engineering and an MSc in Computer Science from TU Dresden, as well as a BSc in Computer Science from Chang'an University. I have published numerous scientific articles and filed over 30 patents within the past three years, and I actively serve as reviewer and editorial board member for respected journals and conferences in telecommunications. For the latest details, please visit to my personal website at `https://huanzhuowu.github.io` or by scanning the QR code in the footer.

Work Experience

Nokia
Munich, Germany

Senior Research Specialist — *Jan. 2023 - Present*

Focus areas: 5G-Advanced & 6G research, 3GPP network architecture, architecture, IMS, AI/ML-driven data collection security, edge computing, and E2E user plane design

- Contribute to 3GPP SA2/SA3/SA4 and RAN3 topics, with a primary emphasis on IMS, AI/ML data collection security, and edge computing
- Lead back-office IMS team for Nokia's 3GPP standardization activities, coordinating cross-functional consensus and driving contributions for key study and work items
- Conduct research topics for 6G, including security aspect of AI/ML data collection, end-to-end user plane design, and RAN Set concepts
- Filed 30+ patents across RAN architecture, core architecture, and multimedia communication within three years
- Recipient of Nokia's Outstanding Leadership Award and repeatedly recognized by research leadership and the SA2 delegation lead for exceptional contributions

Technische Universität Dresden (TU Dresden)
Dresden, Germany

Junior Researcher — *Feb. 2017 - Dec. 2022*

Research areas: In-network Computing, SDN, AI/ML, edge computing

- Conducted research on in-network computing and AI/ML using scikit-learn, PyTorch, Mininet, Ryu, and Open vSwitch SDN frameworks, with publications, talks, and exhibitions on e.g., IEEE GlobeCom, IEEE ICC, IEEE Internet of Things Journal, CES, and Hanover Messe
- Coordinated and managed funded research projects with industry partners and research institutions, overseeing the entire lifecycle from proposal writing to final project outcome delivery
- Published 20+ high-quality scientific articles in leading journals and conferences
- Successfully applied for and secured approx. €900k in external project funding
- Delivered lectures and supervised Bachelor's and Master's students

Education

Technische Universität Dresden (TU Dresden)
Dresden, Germany

Ph.D. in Electrical Engineering — *Feb. 2017 - Apr. 2022*

- Dissertation: In-network Audio Processing for Low-latency Industrial Applications
- Final Grade: magna cum laude

Technische Universität Dresden (TU Dresden)
Dresden, Germany

Master of Science in Computer Science — *Apr. 2012 - Dec. 2016*

- Master Thesis: Regenerating Codes
- Thesis Grade: 1.3

TUDIAS
Dresden, Germany

German Language Course — *Aug. 2011 - Mar. 2012*

- Final Grade: DSH-2 (C1)

Chang'an University
Xi'an, China

Bachelor of Science in Compute Engineering — *Sept. 2007 - July. 2011*

- Bachelor Thesis: Wireless Sensor Network
- Final Grade: A

Selected Publications

The complete publication list is available on my personal website at `https://huanzhuowu.github.io` or via the QR code in the footer.

Journal Articles

- **Huanzhuo Wu**, Jia He, Jiakang Weng, Giang T. Nguyen, Martin Reisslein, and Frank H. P. Fitzek, "OptCDU: Optimizing the Computing Data Unit Size for COIN", In IEEE Transactions on Network and Service Management, May 2024.
- **Huanzhuo Wu** and Yunbin Shen and Xun Xiao and Giang T. Nguyen and Artur Hecker and Frank H. P. Fitzek, "Accelerating Industrial IoT Acoustic Data Separation with In-Network Computing", In IEEE Internet of Things Journal, May 2022.
- Jia He and **Huanzhuo Wu** and Xun Xiao and Riccardo Bassoli and Frank H. P. Fitzek, "Functional Split of In-Network Deep Learning for 6G: A Feasibility Study", In IEEE Wireless Communications, Jan. 2022.
- **Huanzhuo Wu** and Zuo Xiang and Giang T. Nguyen and Yunbin Shen and Frank H. P. Fitzek, "Computing Meets Network: COIN-aware Offloading for Data-intensive Blind Source Separation", In IEEE Network Magazine, June 2021.
- **Huanzhuo Wu** and Giang T. Nguyen and Anil K. Chorppath and Frank H. P. Fitzek, "Network Slicing for Conditional Monitoring in the Industrial Internet of Things", Online IEEE Software Defined Networks, IEEE Softwarization, Jan. 2018.

Conference Papers

- **Huanzhuo Wu** and Jia He and Máté Tömösközi and Zuo Xiang and Frank H. P. Fitzek, "In-Network Processing for Low-Latency Industrial Anomaly Detection in Softwarized Networks", In 2021 IEEE Global Communications Conference: Next-Generation Networking and Internet (Globecom2021 NGNI), Madrid, Spain, 2021.
- **Huanzhuo Wu** and Yunbin Shen and Xun Xiao and Artur Hecker and Frank H. P. Fitzek, "In-Network Processing Acoustic Data for Anomaly Detection in Smart Factory", In 2021 IEEE Global Communications Conference: IoT and Sensor Networks (Globecom2021 IoTSN), Madrid, Spain, 2021.
- **Huanzhuo Wu** and Jia He and Máté Tömösközi and Frank H. P. Fitzek, "Abstraction-based Multi-object Acoustic Anomaly Detection for Low-complexity Big Data Analysis", In WS17 IEEE ICC 2021 Workshop on Communication, Computing, and Networking in Cyber-Physical Systems (WS17 ICC'21 Workshop - CCN-CPS), Montreal, Canada, 2021.
- **Huanzhuo Wu** and Ievgenii A. Tsokalo and David Kußand Hani Salah and Lukas Pingel and Frank H. P. Fitzek, "Demonstration of Network Slicing for Flexible Conditional Monitoring in Industrial IoT Networks", In 2019 16th IEEE Annual Consumer Communications & Networking Conference (CCNC) (CCNC 2019), Las Vegas, USA, 2019.

Book Chapter

- Fabrizio Granelli and Giang T. Nguyen and **Huanzhuo Wu**, "Realizing Network Slicing", In Computing in Communication Networks –From Theory to Practice, Elsevier, vol. 1, pp. 271-289, 2020.