

Subject: Quality of Experience in Next-Generation Networks

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Abstract (max 150 words): The project explores Quality of Experience (QoE) in next-generation networks, with a focus on user-centric metrics for evaluating multimedia services. It combines subjective feedback with objective technical analysis to create advanced models and methods for optimizing QoE. The research aims to address challenges posed by diverse and dynamic network conditions, ensuring reliable and satisfying user experiences. Applications range from video streaming and online gaming to telecommunication services, where QoE insights improve service delivery and user engagement. Key innovations include real-time quality monitoring tools, predictive QoE models for adaptive streaming, and strategies for mitigating the effects of network disruptions. This comprehensive approach contributes to the development of next-generation systems designed to meet growing user demands and expectations in a digital world. The project also emphasizes interdisciplinary collaboration to address the multifaceted nature of QoE research.

Related funding:

- Supported by AGH University of Science and Technology initiatives and national research grants focused on telecommunication and multimedia quality assessments.

Related publications:

- “Modeling of Quality of Experience in No-Reference Model”
Authors: Jakub Nawala, Lucjan Janowski, Mikołaj Leszczuk
Journal: Journal of Telecommunications and Information Technology, 2017.
- “Recent Developments in Visual Quality Monitoring by Key Performance Indicators”
Authors: Mikołaj Leszczuk, Mateusz Hanusiak, Mylene C. F. Farias, Emmanuel Wyckens, George Heston
Journal: Multimedia Tools and Applications, 2016.
- “Assessing Quality of Experience for High-Definition Video Streaming under Diverse Packet Loss Patterns”
Authors: Mikołaj Leszczuk, Lucjan Janowski, Piotr Romaniak, Zdzisław Papir
Journal: Signal Processing: Image Communication, 2013.
- “Objective Video Quality Assessment Method for Face Recognition Tasks”
Authors: Mikołaj Leszczuk, Lucjan Janowski, Jakub Nawala, Atanas Boev
Journal: Electronics, 2022.
- “Algorithm for Video Summarization of Bronchoscopy Procedures”
Authors: Mikołaj Leszczuk, Maciej Duplaga
Journal: Biomedical Engineering Online, 2011.
- “Objective Video Quality Assessment and Ground Truth Coordinates for Automatic License Plate Recognition”
Authors: Mikołaj Leszczuk, Lucjan Janowski, Jakub Nawala, Jingwen Zhu, Yuding Wang, Atanas Boev
Journal: Electronics, 2023.
- “Survey on the State-Of-The-Art Methods for Objective Video Quality Assessment in Recognition Tasks”
Authors: Kamil Kawa, Mikołaj Leszczuk, Atanas Boev
Conference: International Conference on Multimedia Communications, Services and Security, 2020.
- “Monitoring of Audio-Visual Quality by Key Indicators”
Authors: Ignacio Blanco Fernández, Mikołaj Leszczuk
Journal: Multimedia Tools and Applications, 2018.

Related patents:

- None.