ADELINA MUKHAMETDINOVA

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PROFESSIONAL SUMMARY

Power Electronics Engineer with an MS in Electrical Engineering, specializing in power electronics, resonant converters, control of power converters, solid-state transformers and reson. Published researcher with hands-on expertise in MATLAB Simulink modeling, PCB design, and hardware prototyping for high-efficiency power converters.

EDUCATION

University of Pavia, Italy Oct 2025 – Sep 2028
PhD student in Micro- and Nanoelectronics
GPA: 3.02/4.0

Shanghai Jiao Tong University, Shanghai Sep 2022 – Mar 2025
MS in Electrical Engineering
GPA: 3.02/4.0

HSE University, Moscow Sep 2018 – June 2022
BS in Infocommunication technologies and systems
GPA: 8.41/10.0

PUBLICATIONS

- **Mukhametdinova A**, Khan M M, Zhang R. Sensorless Generalized Average Modeling-Based Control for the Resonant LC-DAB Converter [J]. The International Journal of Electrical and Computer Engineering Systems, 2024, https://doi.org/10.32985/ijeces.16.4.1 (SCI).
- Zhang R, Khan M M, Zhao J, **Mukhametdinova A**, Khan M Q. A Four-Degrees-of-Freedom Modulation Strategy for Series Resonant DAB DC-AC Application [J]. International Journal of Circuit Theory and Applications, 2024, http://doi.org/10.1002/cta.4284 (SCI)
- Kozhukhov M, **Mukhametdinova A**. SPICE modeling of the Hot-Carrier Degradation in SiGe HBTs [C]. Problems of Advanced Micro- and Nanoelectronic Systems Development. Moscow, March-November 2021, https://doi.org/10.31114/2078-7707-2021-4-81-85 (RSCI)
- Popov D, Silkin D, Sultanov A, **Mukhametdinova A**, Gallyamov B. Impact of Temperature on Single Event Upset in SRAM Cells with Technology Node Scaling [C]. 14th International Conference on Micro- and Nanoelectronics, Moscow, 4-8 October 2021, https://doi.org/10.29003/m2433.ICMNE-2021 (RSCI)

PROJECT EXPERIENCE

Design of Power Supply for Hydrogen Generation Sep 2023 – January 2025

- **Research Focus:** Developed a **series-resonant modular DC-DC DAB converter** to address stability and efficiency challenges in electrolyzers
- **Key Contributions:**
  - Conducted mathematical modeling of modulation strategies using **MATLAB Simulink**, incorporating **open-loop, closed-loop control** and **compensator** design
  - Designed and optimized **PCB schematic** and **layouts** in **Altium**, utilizing **SiC/GaNFETs**
  - Integrated the **3kW prototype with an electrolyzer**, demonstrating improvements in system stability and performance

Design of DC-AC Microinverter for Photovoltaic Systems Sep 2022 – August 2023

- **Research Focus:** Developed a **high-efficiency DC-AC microinverter** for small-scale photovoltaic systems
- **Key Contributions:**
  - Designed and implemented modulation strategies and control algorithms to optimize power flow and efficiency
  - Analyzed grid synchronization and stability under varying load conditions

- Led the **PCB design**, **planar transformer design** and **DSP** programming in **Code Composer Studio**
- Conducted extensive **debugging** and **testing**, achieving an operational **efficiency of 97.3%** in the DC-AC prototype

Investigation of the Radio Interference on the Parameters of a DC-DC Converter Sep 2021 – June 2022

- **Research Focus**: Analyzed the impact of **electromagnetic interference (EMI)** on the performance of DC-DC converter
- **Key Contributions**:
  - Conducted **experimental testing** to evaluate converter performance under varying EMI conditions and thermal simulation using **Ansys**
  - Utilized **wavelet analysis techniques** in **Python** to analyze output noise characteristics and identify interference patterns

PROFESSIONAL EXPERIENCE

Reagent, Moscow – *Electrical Engineer* Jun 2021 – Aug 2022

- Designed **analog and digital circuits**, including schematic creation and PCB layout optimization for high-speed interfaces such as HDMI and Gigabit Ethernet
- Utilized **Mentor Graphics, Polar, and HyperLynx** for impedance control and signal integrity analysis
- Conducted testing and debugging using **oscilloscopes, power supplies,** and **multimeters**, ensuring compliance with design specifications
- Prepared technical documentation for circuits and PCBs, ensuring clarity and accuracy for manufacturing and testing teams

HSE University, Moscow – *Teaching Assistant* Sep 2020 – Jun 2022

- Assisted in teaching **physics** course, providing support during lab sessions and tutoring students
- Graded assignments and provided feedback, helping students improve their understanding of complex concepts

TECHNICAL SKILLS

EDA tools: Matlab Simulink, LTSpice, Code Composer Studio, Ansys, Altium Designer, Mentor Graphics
Hardware skills: PCB design, impedance control, component selection, bench-level testing (oscilloscopes, power supplies, multimeters), soldering, debugging
Programming languages: Matlab, Python, Labview, C/C++

HONORS & AWARDS

- **Outstanding International Graduate Student**, Shanghai Jiao Tong University, 2025
- **3rd Prize**, 19th China Postgraduate Electronic Design Competition, 2024
- **3rd Prize**, "Zhaoyi Innovation Cup" China Postgraduate Innovation & Practice Competition, 2024
- **Chinese Government Scholarship**, 2022 – 2025
- **Gold Medalist**, All-Russia Student Olympiad "I'm a Professional" in Electronics, Radiotechnics, and Communication Systems, 2022
- **Awardee**, Student Competition "Major League" in Electronics and Nanoelectronics, 2021
- **Russian Presidential Scholarship**, 2021

LANGUAGES

English – C1 Chinese – HSK3 Russian – native Tatar – C1