Ilgiz Murzakhanov

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➢ Background

"Technical University of Denmark" — **Kgs. Lyngby, Denmark 2019 – now**

- Ph.D. "Electrical and Electronics Engineering"
- **GPA: 11.75/12**
- Thesis: "Data-driven Optimization of Distribution Grids"

"Skolkovo Institute of Science and Technology" — **Moscow, Russia 2016 – 2018**

- M.Sc. "Energy Science and Technology"
- **GPA: 4.95/5 (with honors)**
- Thesis: "Decentralized Optimal Power Flow Under Security Constraints"

National Research University "Moscow Power Engineering Institute" — **Moscow, Russia 2012 – 2016**

- B.Sc. "Electric Power Engineering and Electrical Engineering"
- **GPA: 4.81/5**
- Thesis: "Electrical Power Network Engineering with Research of Loss of Power and Energy Calculation Methods in all its Elements"

➢ Research interests

Data-driven Optimization, Interpretability of Neural Networks, Integration of Renewables in Power Systems, Smart Grids, Power Systems Analysis and Optimization

➢ Work experience

Doctoral Researcher at "Technical University of Denmark" — **Kgs. Lyngby, Denmark Sep 2019 – now**

- Research in decentralized optimization of distribution grids and building interpretable neural networks for forecasting in power systems

Research Assistant at "Technical University of Denmark" — **Kgs. Lyngby, Denmark Jun – Aug 2019**

- Contributor to the "Indo-Danish Collaboration for Data-driven Control and Optimization for a Highly Efficient Distribution Grid" project

Research Intern at "Skolkovo Institute of Science and Technology" — **Moscow, Russia 2018 – 2019**

- Leader of the code development team for the "Grid Optimization Competition", announced by ARPA-E

Researcher at "Delft University of Technology" — **Delft, Netherlands Sep – Dec 2017**

- "High Accuracy Simulations on Power Flows" in the Numerical Analysis Group of Prof. Vuik

Intern at R&D Center of "FGC UES" — **Moscow, Russia Jun – Jul 2017**

- Design of the algorithm for distributed optimization of transmission systems

1st category specialist at National Research University "MPEI" — **Moscow, Russia 2015 – 2017**

- 5 settled contracts for a total amount of more than 130 million rubles, including "Updating the schemes of 110-220 kV electric networks in the Moscow region for the needs of the Moscow Technical Development Department"
- 2 developed projects "Intelligent inverter" and "Network Consumption Management System" within the framework of the "Energopromise" competition
- Developed 6-10 kV electric circuit of Moscow for the needs of "Moscow United Energy Grid Company"

- Designed 6-10-20 kV circuit diagram for the needs of "Federal Grid Company of the Unified Energy Network"

Intern at "Magistral Power Grid Center" **Moscow, Russia**

- Designed the circuit diagram of the Kaliningrad regional power grid **Jul – Aug 2015**

Intern at "Enel Russia" **Moscow, Russia**

- Calculations of technical and economic indicators of power plants **Jul 2014**

➢ Selected publications

[1] I. Murzakhanov, G. Raj, V. Kasi, G. Prashal, S. Chatzivasileiadis, N.P. Padhy. "Novel Decentralized Loss Minimization Algorithms for the Distribution System through the reactive power control of Inverters along with the LVRT Improvements which is Validated Through RTDS Simulation" (in preparation)
[2] Y. Lu, I. Murzakhanov, S. Chatzivasileiadis. "Neural network interpretability for forecasting of aggregated renewable generation" (submitted)
[3] I. Murzakhanov, S. Chatzivasileiadis. "Decentralized Model-free Loss Minimization in Distribution Grids with the Use of Inverters" (preprint)
[4] I. Murzakhanov, A. Venzke, G. S. Misyris, S. Chatzivasileiadis. "Neural Networks for Encoding Dynamic Security-Constrained Optimal Power Flow to Mixed-Integer Linear Programs" (in preparation)
[5] I. Murzakhanov, D. Pozo. "Priority Lists for Power System Updates: Locating Phasor Measurement Units". *IEEE PES PowerTech, Madrid, Spain, 27.06.2021-02.07.2021*
[6] B. Faridpak, M. Farrokhifar, I. Murzakhanov, A. Safari. "A Series Multi-Step Approach for Operation Co-optimization of Integrated Power and Natural Gas Systems". In: *Elsevier,* 204 (2020)
[7] I. Murzakhanov, A. Malakhov, E. Gryazina. "Suboptimality of Decentralized Methods for OPF". *IEEE PES PowerTech, Milan, Italy, 23.06.2019-27.06.2019*
[8] I. Murzakhanov, E. Gryazina, M. Farrokhifar. "Decentralized Optimal Power Flow Under Security Constraints". *IEEE REEPE, Moscow, Russia, 14.03.2019-15.03.2019*
[9] M. Gadzhiyev, D. Kravets, I. Murzakhanov. "Cloud computing in power engineering". In: *Electricity. Transmission and distribution* 39.6 (2016), pp. 52-58. (in Russian)
[10] M. Gadzhiyev, N. Zhmurov, I. Murzakhanov. "Open Automated Demand Response". In: *Electricity. Transmission and distribution* 31.4 (2015), pp. 50-52. (in Russian)

➢ (Co-) supervised master theses

[1] Yucun Lu, "Neural network interpretability for forecasting of aggregated renewable generation and control of the aggregated load", Master thesis, DTU, 2021
[2] Dominic Scotoni, "Development and Implementation of a Distributionally Robust Chance Constrained Optimization Tool for Distribution Grids", Master thesis, DTU, 2020

➢ Additional education

- "Advanced Deep Learning with Keras" **DataCamp, 2020**
- Ph.D./M.Sc. level course on "Decomposition techniques for energy systems applications" by guest lecturer J. Kazempour (DTU, Denmark) **Skoltech, Russia Sep 2018**
- "Data Scientist with Python" track accomplishment certificate (22 courses, 84 hours) **DataCamp, 2018**

➢ Social accomplishments

One of 100 finalists of the "Management of the Future" conference **St. Petersburg, 2017**
One of 20 finalists of the national "First Generation" leadership program **Moscow, 2016**

➢ Skills

Python, Matlab, Julia, R, Stan, TensorFlow
Microsoft Office, AutoCAD, PowerFactory, PowerWorld, Siemens NX, RastrWin
English (fluent), Danish (beginner), Russian (native), Tatar (native), Turkish (intermediate)