Ilia Shilov

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Ph.D. (École Normale Supérieure, Paris) and ETH Zürich research lead with 7 years of experience turning energy, mobility and policy questions into quantitative models and decisions.

Education

École Normale Supérieure — *Paris, France*
Ph.D. in Computer Science (game theory, energy markets) — *2020 - 2023*
PSL University; joint with Inria Paris and VITO

Université Paris-Saclay — *Paris, France*
M.Sc. in Optimization — *2018 - 2019*
Excellence Scholarship, Fondation Mathématiques Jacques Hadamard

Saint Petersburg State University — *Saint Petersburg, Russia*
M.Sc. in Probability and Statistics; B.Sc. in Mechanics and Mathematical Modelling — *2012 - 2018*

Experience

ETH Zürich — *Zürich, Switzerland*
Postdoctoral Researcher and Research Lead, Welfarist Control — *2024 - Present*
Automatic Control Laboratory (IfA), NCCR Automation

- Lead a 5-person research team across ETH, MIT and the University of Zürich on fair allocation of shared resources (road space, grid capacity); 8 papers in 2 years, including 2 IEEE journal articles.
- Developed a decision framework that tells operators which efficiency-versus-fairness objective to use and why; applied to traffic tolling in Zürich, solar curtailment in Swiss grids, and recommender-system evaluation.
- Teach three graduate courses and supervise master projects; invited panelist at the IEA Wind symposium and the UZH Digital Society Initiative.

City of Zürich — *Zürich, Switzerland*
Project Initiator and Lead, Autonomous-Vehicle Integration Policy — *Dec 2025 - Present*
Road Safety Division

- Initiated the engagement: pitched the project to the Head of Road Safety, ran 4 stakeholder interviews to define the problem, and delivered a preliminary study in 3 months.
- Scaled it to a 5-person team using the city's digital twin and traffic simulations; opened talks with Uber on industry participation.

Fair Solar-Curtailment Pilot, Walenstadt — *Switzerland*
Project Lead — *2025 - Present*
Swiss distribution system operators, Grid2050 group, University of Basel

- Lead an interdisciplinary team applying a fair curtailment method to a real grid with about 50 rooftop-solar installations; lead author of the two papers the pilot is built on.
- Designed the stakeholder programme: quantitative and qualitative surveys and about 20 interviews with DSOs, utilities, and political and civil-society bodies (in progress); built a public simulator for comparing curtailment rules.

École Normale Supérieure — *Paris, France & Genk, Belgium*
Doctoral Researcher — *2019 - 2023*
Joint with Inria Paris and VITO (Belgium)

- Designed pricing and risk-hedging mechanisms for peer-to-peer electricity markets; 5 publications, invited talks at MIT and Institut Henri Poincaré.
- Consultant to the EU Horizon 2020 EUniversal project (VITO, 2021 - 2022): trading model with network constraints, part of a project deliverable.

EDF (Électricité de France) — *Paris, France*
R&D Intern, Market Design — *2019*
With Université Paris-Dauphine

- Designed an auction mechanism matching renewable producers with EDF customers as an alternative to standard contracts; prototype tested on real customer data.

Additional

Expertise	Energy markets and grid regulation, market and mechanism design, pricing and tolling, cost-benefit and fairness analysis, optimization, statistics, policy advisory
Tools	Python (Pandas, NumPy, SciPy, PyTorch, Scikit-learn), Gurobi, Matlab, SQL (basic), Git, LaTeX
Languages	Russian (native), English (fluent), French (advanced), German (basic)
Publications	12 papers and preprints, incl. IEEE Open Journal of Control Systems, Operations Research Letters, IEEE CDC, IFAC World Congress, ACM RecSys
Other	ETH Postdoc Sounding Board; co-organizer, CLOCK 2025; reviewer for IEEE and EJOR journals