

# Konstantin Burkin






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**SUMMARY:** 1+ years of ML Engineering and Data Science experience. 5+ years in biochemical research.  
Graduating student of Lomonosov Moscow State University.





## EDUCATION

- **BSc & MSc in Fundamental and Applied Chemistry** *Sep 2017 – Present* • **Lomonosov Moscow State University, Russia**
  - Major: Nanobiomaterials and nanobiotechnologies. GPA: 4.97/5
  - Thesis: Development DNA-assay based on CRISPR-Cas system
  - Academic council Scholarship: one of top-10 MSU students based on scientific achievements
- Scientific schools
  - **Neural networks and their applications in research** top-50 MSU students  
Scholarship: one of top-25 based on ML competition and academic results  
Stack: Python, PyTorch, scikit-learn, MLxtend
  - **School of Biomedical Data Analysis** top-100 students nationwide  
Stack: Python, Bash, Git, Snakemake
  - **Pharmacokinetics modeling for drug-development** top-30 students nationwide

## WORK EXPERIENCE

- **ML Engineer**   *June 2022 – Present* • **Higher School of Economics University, Russia**
  - Project: Prediction of health complications for cardiovascular patients based on clinical data.
    - Responsible for project development and publication.
    - Developed ML-models targeting 2 most common complications and combination of every negative outcome.
    - Determined Russian population primary risk factors for each target.
    - Increased Recall by 9% by tuning models with F<sub>2</sub> metric; AUROC by 12% using synthetic minority over-sampling.
  - Stack: Python, Git, Bash, scikit-learn, imblearn, MLxtend, CatBoost, Pandas, NumPy
- **Research Fellow** *June 2018 – Present* • **Lomonosov Moscow State University, Russia**
  - Project: Advancement of DNA detection methods by integration of isothermal amplification systems.  [2,3,5](#)
  - Project: Immunoassays improvement for group-detection of antibiotics and sensitivity enhancement.  [6,7](#)
    - Independently conducted experiments and submitted publication drafts to the supervisor.
- **Research Intern** *June 2019 – July 2019* • **Queen's University Belfast, United Kingdom**
  - Project: Critical appraisal of smartphone-based quantification systems for colorimetric assays.  [4](#)
    - Developed background image correction to avoid color variation; Validated detection system with 6 phones.

## INDIVIDUAL PROJECTS

- **COVID-19 Vaccination Prognosis**  
  - Used Kaggle dataset to make prognosis for end-date of vaccination programs against COVID-19.
  - Reported countries with successful vaccination programs that achieved herd immunity.
  - Stack: Python, scikit-learn, Pandas, NumPy, Plotly, Git, Bash, HTML5
- **Delivery Club Sales Prediction**  
  - Created ML model for weekly sales prognosis in Delivery Club app to minimize the company's logistics costs.
  - Improved MAE by 2.4 points by reconfiguring features (one-hot encoded cities and lag features).
  - Stack: Python, scikit-learn, Pandas, NumPy, Plotly, Matplotlib, Git, Bash, HTML5

## PUBLICATIONS

1. **Burkin K.**, Kirdeev A., Nikolaev K., Kovalenko L., Vorobyov A., Poptsova M. – *CBAI*, 2022. [DOI](#)
2. Safenkova I., **Burkin K.**, Bodulev O., Razo S., Ivanov A., Zherdev A., Dzantiev B., Sakharov I. – *Talanta*, 2022. [DOI](#)
3. Bodulev O., **Burkin K.**, Efremov E., Sakharov I. – *Analytical and Bioanalytical Chemistry*, 2020. [DOI](#)
4. Nelis J., Bura L., Zhao Y., **Burkin K.**, Rafferty K., Elliott C., Campbell K. – *Sensors*, 2019. [DOI](#)
5. **Burkin K.**, Bodulev O., Gribas A., Sakharov I. – *Enzyme and Microbial Technology*, 2019. [DOI](#)
6. Galvidis I.A., **Burkin K.**, Eremin S., Burkin M. – *Analytical Methods*, 2019. [DOI](#)
7. Burkin M., Lapa G., Galvidis I., **Burkin K.**, Zubkov A., Eremin S. – *Analytical Methods*, 2018. [DOI](#)