

Advanced Doctoral Studies

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Higher School of Economics (HSE)

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Education

- Bachelor's Degree in Petroleum Engineering

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- Bachelor's Degree in Petroleum Engineering
- Master's Degree with Honors in Computer Science and Engineering

Summer Schools

- New Technologies to Search for New phenomena in Particle Physics (MISIS)

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- Sixth Machine Learning in High Energy Physics Summer School (EPFL)

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- Sixth Machine Learning in High Energy Physics Summer School (EPFL)
- Summer School of Machine Learning (Skoltech)

- Data Scientist at ITCanFly (Moscow)

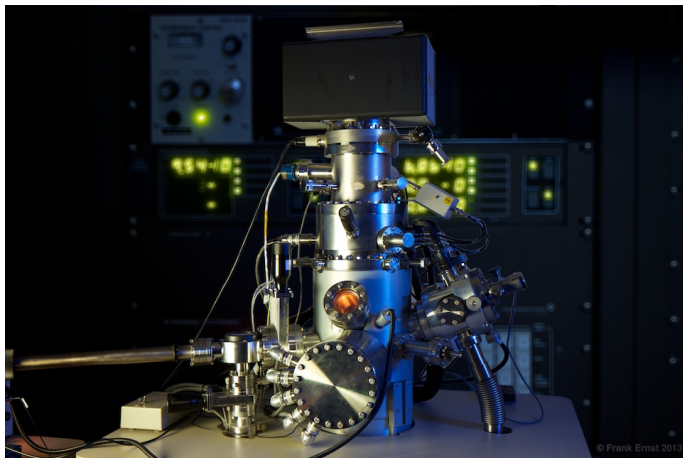
Career

- Data Scientist at ITCanFly (Moscow)
- Data Scientist at Wonderobe (Moscow)

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- Data Scientist at Wonderobe (Moscow)
- Research Assistant at Laboratory of Methods for Big Data Analysis (HSE)

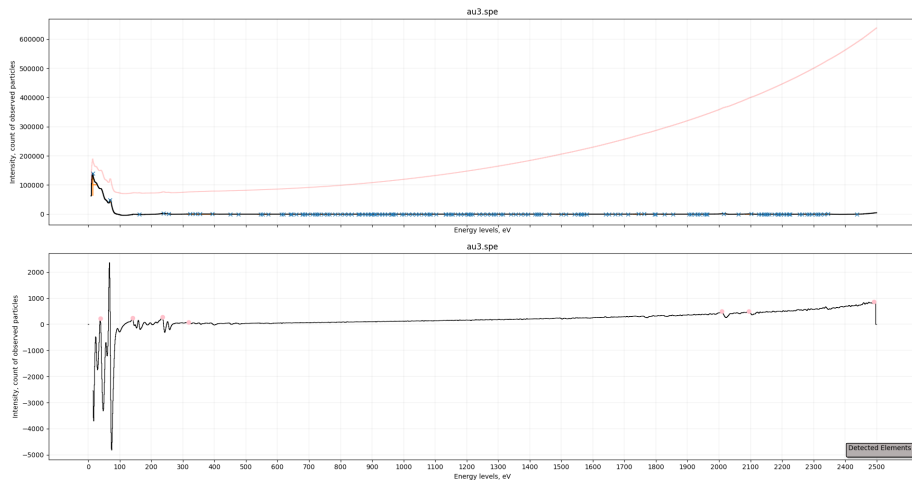
Research

A New Approach for Analyzing Auger Electron Spectroscopy Data Using Deep Learning

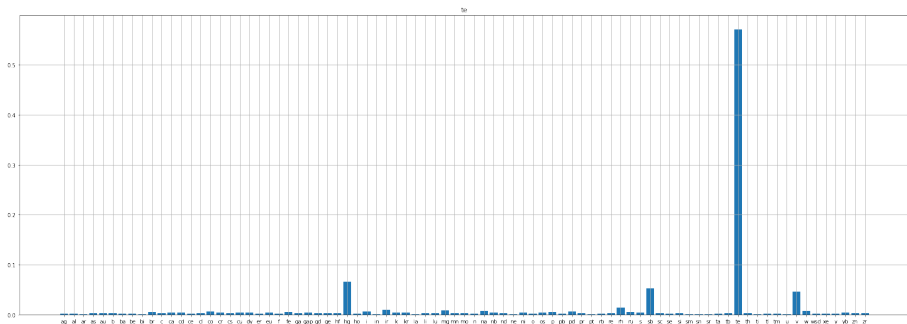


Research

Input Data



Elements Identification and Quantification



Inverse Simulation

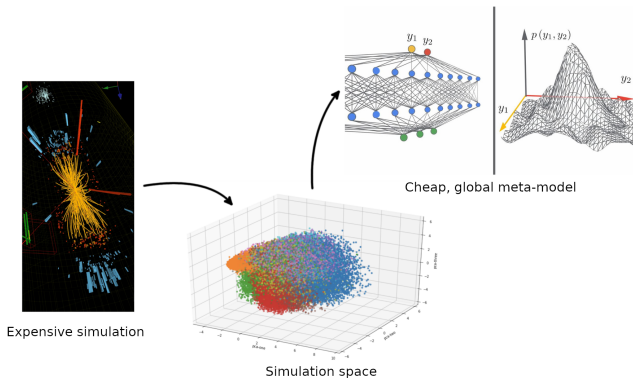
- Simulation
Solve a forward problem how a given system would behave when given a certain input

Inverse Simulation

- Simulation
Solve a forward problem how a given system would behave when given a certain input
- Inverse Simulation
Given the observed data and a simulator, infer the system parameters that would make the simulator data match the observed Data

Surrogate Inference & Simulation

- Surrogate-based inference
- Interpretable surrogate models



The Plan

- **First year**
Overview and conceptual design

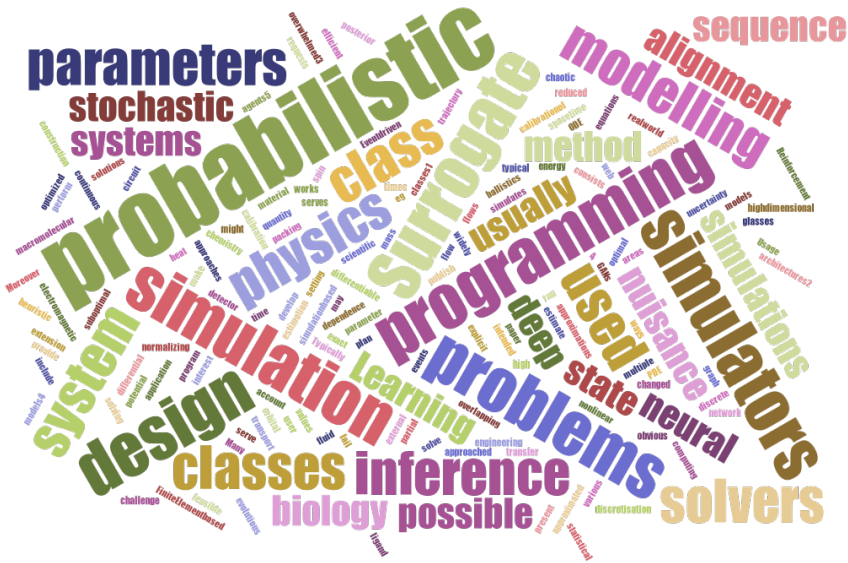
The Plan

- **First year**
Overview and conceptual design
- **Second year**
Method design

The Plan

- **First year**
Overview and conceptual design
- **Second year**
Method design
- **Third year**
Prove and test the method on various tasks such as:
 - Black-box optimization problems
 - Few-shot learning problems

Keywords



Demo

Inverse Simulation

- Block coordinates $\sim \mathcal{N}(\mu, \sigma^2)$



Demo

Inverse Simulation

- Block coordinates $\sim \mathcal{N}(\mu, \sigma^2)$
- Ball radius $\sim \mathcal{U}(a, b)$



Demo

Inverse Simulation

- Block coordinates $\sim \mathcal{N}(\mu, \sigma^2)$
- Ball radius $\sim \mathcal{U}(a, b)$
- Ball elasticity $\sim \mathcal{U}(a, b)$



Thank You