Elena Fedorova

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Danish work permit

I'm a researcher with a background in natural science and design.
My core strengths are critical thinking and analytical skills. I thrive on structuring information, finding the essence behind data and explaining complex ideas in a concise way. Having experience in both tech and customer relations domains, I can bridge the gap between technical and business teams. I have extensive hands-on skills in Python programming, data analysis and data visualisation, and I'm looking for a dedicated team to contribute my expertise and to grow.

EXPERIENCE

Graphic Design and Science Illustration 2021 - present

AdaptyvBio, contractor, remote

I'm supporting the team of the fast-growing biotech start-up with various visual materials

- communicate with stakeholders to understand their needs and deliver visual solutions
- create infographics for presentations and web, and build the company website
- develop and maintain the company design system and advocate it to the team

relocating to Denmark 2021
relocating to Switzerland 2020

Researcher, Optics and Spectroscopy 2012 – 2020

Lebedev Physical Institute, Moscow, Russia

Development of an atomic optical clock – a laboratory device, measuring a second with 10^{-16} accuracy.
My work included data analysis, R&D, communication and management activities.

Data analysis

- cleaned, and processed experimental measurement data using Jupyter Notebooks (Pandas, NumPy, SciPy, Matplotlib, Plotly) and stored results in the MongoDB database
- built predictive models to fit datasets and describe observed phenomena, performed statistical analysis and numerical simulations using Python
- created hypotheses and constructed experiments to test them
- visualized data, to find trends, and anomalies, and to communicate findings

R&D

- designed and built an experimental setup, including optical schemes (free-space and fibre), vacuum chambers (up to 10^{-8} mbar), control electronics (PID loops, detectors and RF components for AOMs and EOMs) and data acquisition pipelines (National Instruments DAQ devices)
- conducted various types of precision optical measurements, including UV and IR spectroscopy
- mainteained and troubleshot different types of lasers, including cw and pulsed titan-sapphire lasers, cw fiber lasers, diode lasers, tapered amplifiers, and frequency-doubling units
- stabilised laser frequency (high-fineness ULE cavities, saturated absorption, PDH, Hansch-Couillaud
- conducted tests to evaluate setup performance, identify sources of noise and instability, performed root cause analysis

Communication and project management

- wrote manuscripts, funding proposals and technical reports, documented measurement results
- explained research results to colleagues and group leaders at meetings and to the external public at seminars and conferences
- planned experimental activities, wrote project plans, defining objectives, risks, timelines, and resources
- supervised undergraduate researchers, and provided training and guidance

Achievements/Projects

- our team developed the world's first thulium-based atomic optical clock
- in a team of five researchers, built a sub-hertz-linewidth laser system
- contributed to over 20 publications in peer-reviewed journals and presented the results of the group at 23 conferences (with 3 best poster awards)

Researcher, Quantum Simulators

Russian Quantum Center, Moscow, Russia 2017 – 2020

Quantum simulations with ultracold atoms. My responsibility covered the full scope of research activities.

Lecturer, Course on Light-Matter Interaction 2015 – 2019

Moscow Institute of Physics and Technology (MIPT), Moscow, Russia

- developed the course program and educational materials, by searching for information from diverse sources, and structuring it into a consistent narrative
- gave lectures to students and conducted examinations

EDUCATION

PhD, Laser Physics 2014 – 2019

Moscow Institute of Physics and Technology (MIPT), Moscow, Russia

Master's and Bachelor's Degree, Applied Mathematics and Physics 2008 – 2014

Moscow Institute of Physics and Technology (MIPT), Moscow, Russia

Diplomas with distinction, TOP-3 national ranking institute

COURSES

Machine Learning Specialization

Coursera, Aug 2023

Series of three courses on supervised learning (linear regression, logistic regression, neural networks, decision trees), unsupervised learning (clustering, anomaly detection), and recommender systems. Principles of algorithm and practical skills for their implementation with Python (Scikit-learn, TensorFlow).

Graphic Design

Contented, online school, 2021

an 8-month online program explaining design methodology, composition and colour theories, and developing practical skills with tools such as Figma, Photoshop, Illustrator After Effects and Blender.

VOLUNTEER WORK

Graphic Design 2022 – present

Women Who Code London, remote

WWCode is an international nonprofit organization helping women to excel in technology careers. I'm helping the team with all types of ad-hoc tasks, e.g. social media content, web design, and presentations.

LANGUAGE SKILLS

Danish – intermediate | English – fluent | Russian - native

SKILLS

Python | data analysis | statistical analysis | data visualisation | visual storytelling | critical thinking | problem-solving | technical writing | project management | empathy