Greetings to everyone who reads this cover letter! I'm very exited to see your interest. This letter is different from other ones, since it was written for everyone. It purpose is to briefly describe my interests.

My name is Dmitriy, and my skills and projects are presented in this letter (which ones allow me to call myself a scientist). I have been investigating them for more than 10 years, and this themes are still marvelous! **There are three areas** in which I constantly search data, analyze information and develop new useful projects.

1. Computer technologies and data analysis. I try to find tools in this area, which allows me to implement my ideas. Programs with user interface (PyQt) and different scripts in Python and R are created as well as methods of analyzing big data and visualization are used by myself. I try to find the most modern and automated solution of arising problems.

2. Automation of processes and control methods in chemical technology. This is the area for inspiration and challenges. I have been working in the industrial production of mineral fertilizers for over 9 years. Various production technologies, control techniques, data processing and visualization methods were studied. The combined X-ray fluorescence and optical control device for mineral fertilizers is good example of it. In addition, control of granulation processes was implemented (based on data analysis and machine vision algorithms). The developed industrial automatic granular composition analyzer (device and software) is proof of it.

3. Analytical chemistry and statistical research. This is an additional field of knowledge for test of developed approaches and devices in laboratory conditions. I try out new hypotheses and calculate the probabilities of the obtained results.

However, you have to try to teach another person in order to understand your work. For this reason, I run my blog and actively teach at Cherepovets State University in the evenings classes. It allows not losing the skills of effective communication with people besides systematization of knowledge.

Such approach to personal development and goals definition has allowed me to achieve career growth from junior researcher to the head of a group of scientists (a group of express methods of analysis and automation of technological processes of JSC "NIUIF"). Besides, I have obtained a number of **key results** in the course of my professional activity.

1. **An industrial automatic granular composition analyzer** (**AGC**, device and software) for online control of mineral fertilizer particles properties was created. Its cost is less than analogues, but AGC allows to analyze more parameters, therefore more data come directly to the plant information system. I personally implemented the work algorithm, software and administration of data (network, data transmission and operating system). There are already 4 such devices in production and it is planned to deploy new ones.

2. **New algorithms** for collecting, processing and presenting analytical data were developed. On their basis, a combined X-ray fluorescence optical control device, a fertilizer sample database and several methods of fertilizer identification and analysis were created (with k-means clustering, PCA, multiple regression and classification).

3. **Six techniques of quantitative analysis** for wave and energy dispersion X-ray fluorescence analysis were developed and certified (on the internal and governmental levels) under my supervision and with my direct involvement.

I enjoy my work and my life choices. I have never regret about graduation from the Department of Chemistry at Moscow State University with a degree in analytical chemistry and nanotechnology. This allowed me to understand the fundamental and applied bases of chemistry. Further development of my

way was PhD thesis on a specialty devices and methods of experimental physics as well as three online specialties on machine learning and data analysis (Yandex, Johns Hopkins University, Microsoft). Such career and personal path of development allowed me to successfully solve fundamental and applied scientific tasks, to upgrade methods of quality control in industrial production and to find and develop interesting and promising projects.

Close interactions with colleagues and ambitious goals have taught me to always be critical and listen to people. Moreover, its teach me to understand and accept their point of view. Such experience allowed to successfully combine research activities with the leadership of a team of researchers. There are 4 people and 2 laboratory spaces under my supervision today. I am excited about putting fundamental knowledge into practice through effective management, programming skills and modern technology!

Please, see the "Projects" section of this website for further analysis of my ideas (both implemented and under development). Professionalism in scientific activity is confirmed by 9 articles (4 are included in Scopus or Web of Science databases), 3 software licenses and 1 patent for useful model (based on the results of my PhD research). You can find more information about me in CV and on the pages of this resource.

I see my further path of evolution in the new ambitious projects and colleagues cooperation (from whom I will be able to learn and develop my skills and techniques). If your interesting in cooperation, please do not hesitate to contact me directly!

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Looking forward to your messages!

Sincerely,

Dmitriy Yunovidov

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