

COVER LETTER

To Laurent Gourves and Fanny Pascual
From Ekaterina Alekseeva
May 27, 2010

Dear Dr. Laurent and Dr. Fanny,

I am applying for the postdoctoral researcher for the research project Combinatorial Optimization with competing agents (COCA) that was advertised on the dmanet site this month. The position seems to fit very well with my education, experience and knowledge.

The area of my research interests is a metaheuristics for the discrete combinatorial problems, especially for location problems. Since 2003 year I have been involved in this vast research field. During my researches I have adapted, developed and investigated different algorithmic ideas and concepts of metaheuristics such as a tabu search, genetic algorithm, variable neighborhood search with the different kinds of neighborhoods, have suggested the new pivoting rules for the classical p -median problem, bilevel p -median problem with user preferences, (r/p) -centroid problem. Last time I am engaged in a new direction called Matheuristics. It concerned with hybridization mathematical programming with metaheuristics. I have developed a new exact method based on these technique and the column generation ideas for the discrete (r/p) -centroid problem. This problem is harder than any NP-hard problem so the exact method allows to find an optimal solution and to prove it for this difficult problem. It is a new idea which, as I hope, results in solving the large-scale discrete (r/p) -centroid problem. The results of my research have entered in the Competitive p -median problem section of the “Discrete Location Problems. Benchmarks library”

http://math.nsc.ru/AP/benchmarks/Competitive/p_med_comp_tests_eng.html.

Within PhD thesis I investigated complexity of the local search problems, especially PLS-completeness for bilevel p -median problem with user preferences with respect to Swap, Lin-Kerningan neighborhoods and others.

In addition to research activities teaching takes me 80% percents of time now. I am an associate professor at the Novosibirsk State University and at the Siberian State University of Telecommunications and Informatics. Total I have four course of lectures and five courses of seminars. Last year I was awarded by diploma as “The best young lecturer”. In future I would like to reduce teaching responsibility and spend more time for research.

COCA position has interested me because of the several reasons.

Firstly, I would like to apply my solid knowledge and good experience in metaheuristics for the discrete combinatorial problems. At the same time it would be very interesting and useful to solve and consider new problems like in COCA project, to extend the area of scientific interests. Secondly, it is interesting for me to solve real-world problems. From time to time I have been involved in some applied projects. In these projects my colleges and I have formulated mathematical models for large-scale optimization problems, developed an algorithms and software in Delphi and in GAMS. Also I was responsible for programming and optimization parts of the decision support system for John Deer’s company. One more project was for Coca-Cola Company I have suggested a mathematical model for optimizing the number of using trucks. It has been successfully used and as a result the hired costs are reduced by 40%. Another project was concerned with productivity optimization for the largest plant in the industry sector. I

have made modifications in the existing algorithm, notably it was parallelized to decrease the running time.

And honestly the last but not the least reason is that I adore France. During two last years I am studying French. And it would be brilliant possibility if it will be possible coincide the favorite job with the country of dream.

In the resume provides more details on my qualifications. I am confident that hard-working and sociable abilities together with excellent education and experience make possible to perform the research project effectively. Thank you very much for consideration. I look forward to contact with you soon.

Sincerely yours,

Ekaterina Alekseeva.