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Dr. Fanny Pascual
Laboratoire d'Informatique de Paris 6 (LIP6)
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Dear Dr. Pascual,

I am writing to submit my application for the postdoctoral position in the research project Combinatorial Optimization with competing agents (COCA). I obtained my Ph.D. in Computer Science from Gubkin Russian State University of Oil and Gas in Moscow. My research interests are broad, spanning the spectrum from optimization algorithms for group decision-making to swarm optimization and game theory implementation for numerical optimization techniques.

My background includes experience in both research and programming, which have given me a strong foundation in the areas of algorithm development, discrete optimization and agent-based programming and distributed software design.

In my Ph. D. research, I analyzed group decision-making under uncertainty and applied it to energy management. A model and an algorithm were proposed to solve a discrete scheduling problem of gas pipeline system development based on the experts' opinions, along with the prototype of a multi-agent group decision support system. The gas supply system was considered as a dynamic graph and the plan of its changes as a binary matrix. To calculate this matrix, it was necessary to take into account not only traditional strategic planning criteria but also the graph configuration and the physical limits of gas flows. The key idea of the research was to create a group decision-making algorithm to reduce expert negotiation workload by illuminating non-critical disagreements and using software agents for routine negotiations. Both agent methodologies for distributed systems and agents programming were used for the algorithm's realization.

In my future research, I would like to concentrate more on the algorithmic aspects of optimization problems. I am interested in working in the field of game theory to develop games and research player strategies and their application to the theoretical and applied optimization problems. Concerning software development, I am interested in practical work with imitation models of these algorithms.

In the long term, I am also interested in multidisciplinary work in the field of swarm optimization. Using ideas of nature and human group decision-making techniques and common behaviors, and implementing them to create effective optimization algorithms is an area I am interested in researching.

I believe that my experiences in individual and collaborative research, teaching, and industry, when combined with my interests and motivation, would allow me to contribute effectively to the COCA project. If any additional information to support my application is necessary, I will provide it as soon as it possible. Thank you for your time and kind consideration.

Sincerely,

Dmitry Gimon