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| **Title:** Focus Group Algorithm  **Main author: R.S. Pavithr and Gursaran**  **Year:** 2017-2018  **Link:** <https://www.worldscientific.com/doi/pdf/10.1142/S1469026818500025> |
| **Journal:** International Journal of Computational Intelligence and Applications  **IF:**  **Pages:27** |
| **Structure of the paper**   1. Abstract 2. Introduction  * Literature review * Inspiration * Introduction focus group and algorithm  1. Focus Group  * Introduction * Working process  1. The proposed Focus Group Optimization Algorithm  * Exploration analysis(facilitator) * Exploitation analysis (focus group members) * Pseudo code of the Algorithm * Impact factor equation * Vector Representation in 2-D space  1. The Clarifier Example equation () 2. Standard benchmark functions testing  * Figures and plots  1. Determination of parameters  * Impact coefficients * Turning the inertia weight  1. Experiments 2. Conclusion 3. References |
| **Detail of figures and plots**  **Regarding inspiration**   1. Inspiration of Focus Group: show how people interact and find the best solution to the problem   **Regarding Mapping of the inspiration**   1. Facilitator role and role of focus group members 2. Evaluation of focus members to convergence towards the goal. 3. Facilitator role and how focus group members generate ideas   **Related to experimental studies**   1. Clarifier Example 2. Values of impact coefficients 3. Tuning the inertia weight for best values 4. Experiments of 20 unconstrained benchmark functions 5. Comparison with algorithms on unconstrained benchmark functions |
| **Experimental setup and experimentation**   * **Experiment-1:** Finding the best IC value for the algorithm   **No of solutions:**10  **Input:** fitness values by the parameter’s values  **Output:** IC values of the respective solution  **Output structure:** tabular form   * **Experiment-2:** Tuning the inertia weight(w).   + **No of solution sets: 20**   + **Outputs:** Average of the solution finesses of different w(inertia) values   + **Output structure:** Tabular form   **Results:** Best results of the fitness of (0.7,0.8.0,9) w values   * **Experiment-3:** Performed experiments of unconstrained benchmarks functions   + **Outputs:** Best, Mean**, Median**, standard deviation, Worst   + **Output structure:** Tabular form data   **Experiment-4:** Performed experiments on unconstrained benchmarks functions   * + **Compared with:** KH, PSO, GA, DE, ABC, TBLO   + **Outputs:** mean values of 50 iterations of the algorithm   + **Output structure:** Tabular form * **Experiment-5:** Performed on constrained benchmarks functions   + **Compared with:** KH, PSO, GA, DE, ABC, TBLO   + **Outputs:** Optimum values of variables and cost function   + **Output structure:** Tabular form |
| **A brief summary of the proposed work [one paragraph]**  Focus group algorithm is based on the workshops in which there is a facilitator and a group of people in which people discuss and give ideas and the team gets on the best possible solution and the respective time. The discussion people strength is 10 plus a moderator and an observer (note taker). The group discusses on a certain problem and gives ideas. The ideas of the group members affect the other members ideas and vice versa. The solution or the ideas of the members improve of the basis of the cooperation. The best solutions improve the solutions of the worst ones. Other than that, there are also 2 members note taker and facilitator. The role of facilitator is to supervise the discussion and note taker notes all the activities and discussions in the work. Members with better solutions likely to dominate and their solutions are given more importance in the total discussion. Another role of the facilitator is to prioritize the worst solution to provide more chances to actively participant in the discussion. Facilitator also prevents the solution from early convergence and strengths the exploratory property of the algorithm. The group members provide the exploitation property of the algorithm. Mostly the best solutions affect the total solutions but the worst one affects the solutions to some extend (but less than the best solutions at that point). The note taker notes the overall events of the discussion. |
| **Critical review**  The algorithm does not include the note taker in the proposed algorithm. As the note taker responsibility is to note all the activities and discussions done in the group. The mapping could include if the previous good solutions are also considered in the discussion. |
| **Any idea to upgrade the concept**  the parameter of the cooperate authority is not included in the focus group members. As we know in the algorithm, that solutions of all kinds have an impact on the total population’s ideas. As we know that there is a superior focus group member (An authority) which is much experienced and mostly gives the best solution in the group. In the initial population the user which has the best solution would be the cooperate authority. It would change according to the fitness values of the solution according to the different iterations. It would give fast convergence rates because the other solution would have that impact factor on them and they also produce best solutions and coverage towards the goal easily.  Another important factor would be the role of the facilitator. One of the responsibilities of the facilitator that it also encourages the worst solution giving group members to take part in the discussion so that the population could explore the search space. The facilitator factor heavily provides the exploration in the system. The Ratio of considering the answers would be changed according to the problem provided by the engineering or the problem. |
| **Name five papers from references, you’d like to read next**   1. **Focus Group (FG): An Optimization Algorithm Inspired by Human Behavior** 2. **Mushroom Reproduction Optimization (MRO): A Novel Nature-Inspired Evolutionary Algorithm** 3. **Efficient Feature Selection Method Using Real-Valued Grasshopper Optimization Algorithm** 4. **An analysis and evaluation of the WeFold collaborative for protein structure prediction and its pipelines in CASP11 and CASP12** |
| **Name five papers from citations, you’d like to read next**   1. **Collection of Abstracts in Artificial Human Optimization Field** |