

INFORMATION ON DUPLICATION

GEAR algorithm [YGE] (technical report, August 2001) is a duplication of our previous work [SL2], consisting of cost-aware localized routing scheme [SL2] from 1998 and DFS-based routing [SRV] from 2000. The authors of GEAR published it only as a technical report in 2001, while authors of [HSE] did not explain how GEAR works, although they use it as major ingredient in their applications. Details follow.

Yu, Govindan and Estrin [YGE] considered geocasting variant of the problem. They describe *GEAR* (geographic and energy aware routing) algorithm which uses energy aware neighbor selection to route the packet towards the target region, and recursive geographic forwarding, or restricted blind flooding algorithm to disseminate the packet inside the destination region. Recursive forwarding applies *GEAR* to send messages to four subregions in the geocast region, which repeats until the region has a single node inside it. *GEAR* algorithm selects forwarding neighbor (among those that are closer to the destination) which minimizes a linear combination of their distance to destination and the energy they already spent. This is almost equivalent to the cost aware localized scheme by Stojmenovic and Lin [SL2], originally proposed in 1998. One of GEAR's authors, Yan Yu, agreed that two schemes are 'similar in spirit, since they are all some function of consumed energy and distance.' Yu also agreed 'that it probably won't have major impact on the performance', as pointed in their article. Authors [YGE] also claim that *GEAR* can avoid holes by applying a learning *A** algorithm based approach, without presenting details of it. To avoid holes, one can use, for example, a depth-first search (*DFS*) approach [SRV]. This approach requires memorizing past traffic at nodes. If, for instance, *GFG* [BMSU] is applied first, memorization is avoided (algorithm is more adaptive to topology changes), and some optimizations (described in [YGE]) can follow later on recursively. Note also that [HSE] further elaborated on the use of *GEAR* for various forms of data dissemination, without giving its description.

Note that a newer and more elegant cost aware localized routing algorithm was given recently in [KNS3]. Also note that geocasting algorithms with guaranteed delivery, thus much improved compared to ones used in [YGE], are surveyed recently in [S-geo].

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