Harmonic Search;

Input: $f_{fitness}$, LB_p, UB_p, p_{hmcr}, p_{par}, b_w, N_i, std ;

Create $HM_{hms,p}$ with each $x_p \sim U(LB_p, UB_p)$;

Calculate $HM_{fitness}$;

$counter = 0$;

repeat

    for x_p *with* $p \in [1, p]$ **do**

        if $n_p \sim U(0,1) \leq p_{hmcr}$ **then**

            $x'_p = x^j_p$, where $j \sim U(0, hms)$;

            if $n_p \sim U(0,1) \leq p_{par}$ **then**

                $x'_p = x'_p + r \cdot b_w$, where $r \sim U(-1, 1)$

            end

        else

            $x'_p = z$, where $z \sim U(LB_p, UB_p)$;

        end

    end

    if $f(x'_p) < max(HM_{fitness})$ **then**

        $f(x^{max}_p) \notin HM_{fitness}$ and $x^{max}_p \notin HM_{hms,p}$;

        $f(x'_p) \in HM_{fitness}$ and $x'_p \in HM_{hms,p}$

    end

    $counter + 1$;

until $counter = N_i$ *or* $sd(HM_{fitness}) < std$;