
```
function phi = Rastrigin(x)
%RASTRIGIN Implemetation of the Rastrigin function, linear external
penalty
% Thomas Satterly
% AAE 550, HW 3

f = 10 * numel(x);
for i = 1:numel(x)
    f = f + (x(i)^2 - 10 * cos(2 * pi * x(i)));
end

% Penalty function
g(1) = (x(1) / -5.12) - 1;
g(2) = (x(1) / 5.12) - 1;

g(3) = (x(2) / -5.12) - 1;
g(4) = (x(2) / 5.12) - 1;

P = 0;
for i = 1:numel(g)
    P = P + 10 * max(0,g(i));
end
phi = f + P;

end
```

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