

# Tipaluck Krityakierne

## Research Activities

### Areas of Expertise

Optimization

### Current Interests and Activities

Many engineering problems require the optimization of objective functions whose values are obtained from a computationally very expensive simulation model. Such an objective function evaluation may take from several minutes to several hours or even days. Using surrogate response surfaces (also known as surrogate models or metamodels) enables us to reach our goal of finding near optimal solutions within very few number of function evaluations.

I have developed a Radial Basis Function (RBF) model optimization method for single-objective blackbox problems. The search mechanism of the algorithm incorporates bi-objective search, tabu search, and surrogate assisted local search. By effectively selecting multiple points for function evaluations, the method can reduce the computation time significantly.

My recent research focuses on developing effective computational methods using Gaussian Process (GP) models for large-scale optimization problems as well as for set-valued input functions. I am also interested in climate data modeling to study temperature extrema, as well as groundwater monitoring and remediation applications.