



SweGRIDS

Improved observability in the power system: Real-time stability monitoring and control

PhD student: Sayyeda Umbereen Bano, sayyeda@kth.se

Supervisors: Mehrdad Ghandhari Alavijh (KTH), mehrdad@kth.se,
Robert Eriksson (Svenska kraftnät), Robert.Eriksson@svk.se

Department: Electrical Power and Energy Systems

Group: Power System Dynamics, Operation, and Control Research Group

SweGRIDS Research Area: Flexible Power Systems (FPS19)

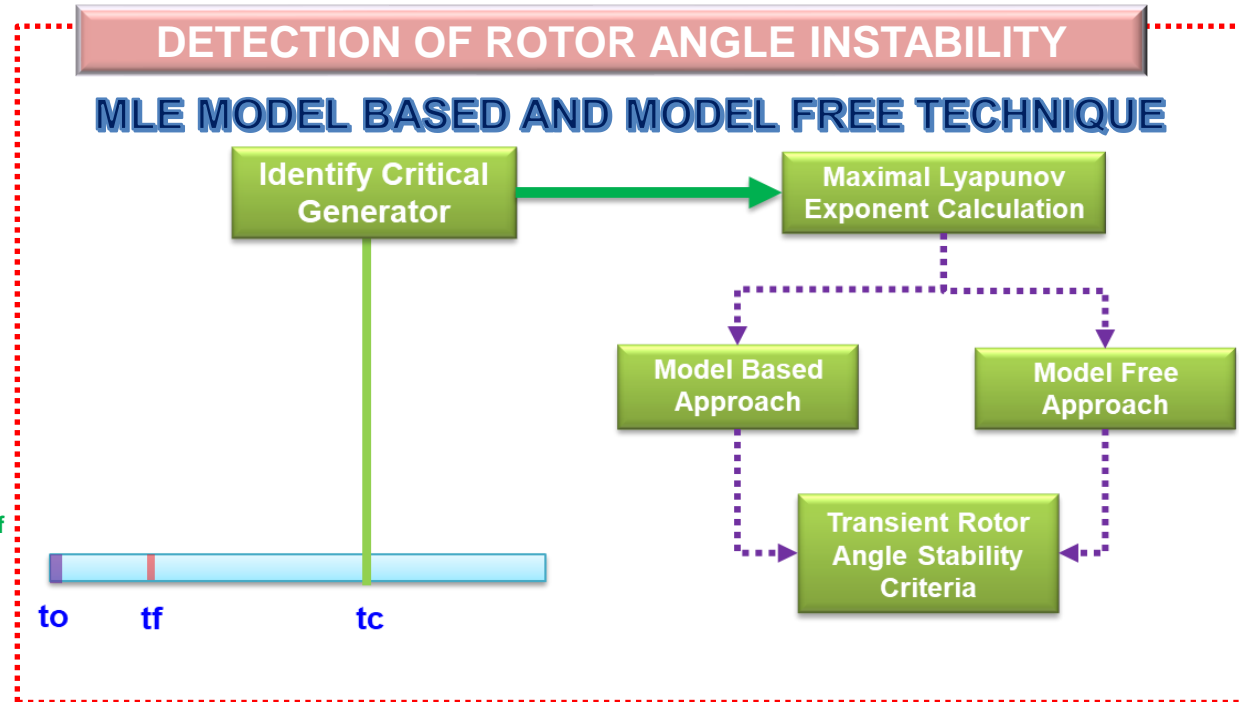
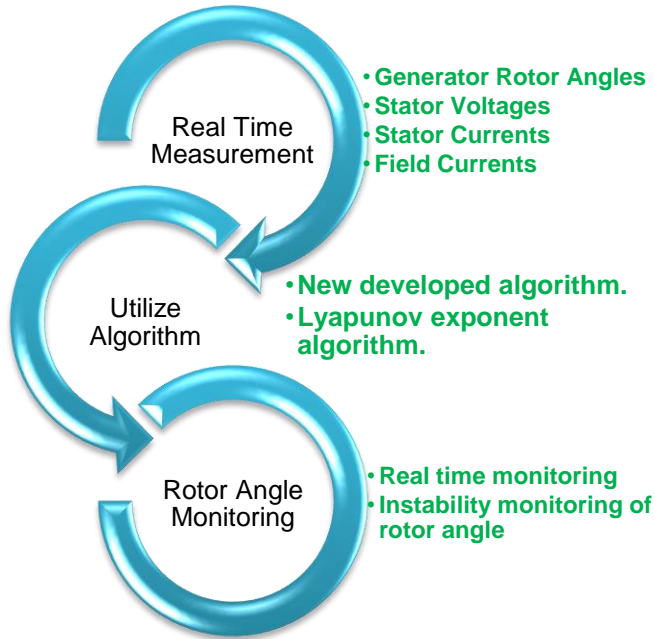
Project Period: 2019- 2024

Project funded by:



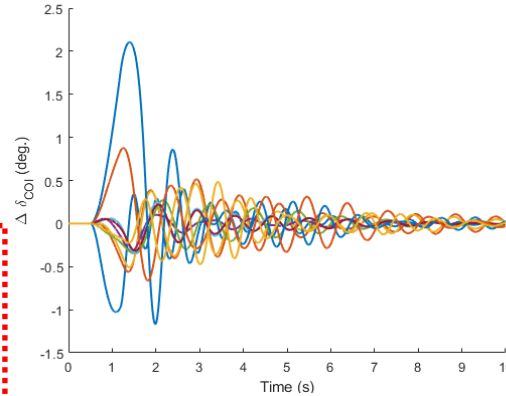
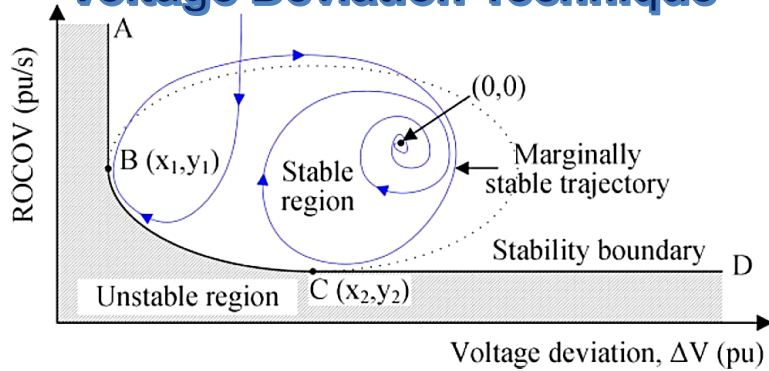
RESEARCH AIM & OBJECTIVES

SweGRIDS

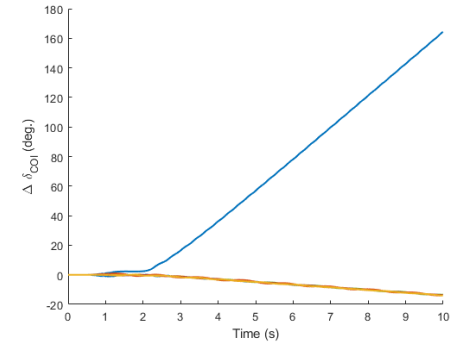
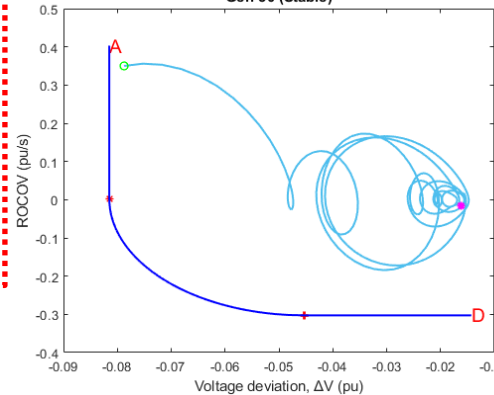


DETECTION OF ROTOR ANGLE INSTABILITY

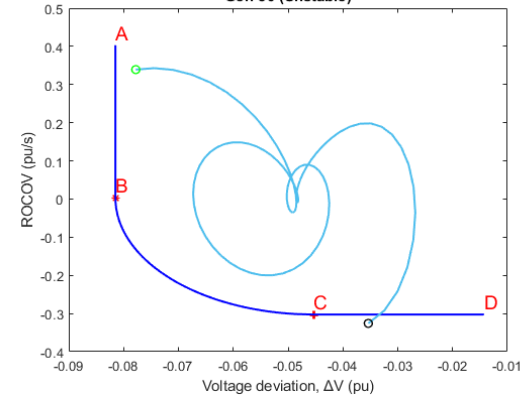
Voltage Deviation Technique



Gen-30 (Stable)



Gen-30 (Unstable)



RESEARCH OUTCOME

SweGRIDS

Results Achieved

Result # 1 Identify Critical Generators

Result # 2

Developed Algorithms to find instability

Result # 3 Detection of instability based on algorithms

Result # 4 Implementation of these algorithms on IEEE 39 Bus System

Results # 5 Comparative Analysis based on different techniques

Implemented Techniques

- Single Machine Infinite Bus System
- Three generator System
- IEEE 39 Bus System

PLANNED ACTIVITIES IN 2022

