

Gayathri Krishnamoorthy

ELECTRICAL ENGINEER | COMPUTER SCIENTIST

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Power Systems Engineer with 5+ years of experience as a researcher at Washington State University and multiple internship experiences at National Laboratories. Worked on several projects developing software tools to efficiently integrate renewable resources into power grid models while making them a significant player in energy markets. I am outgoing, creative, and detail-oriented with strong engineering basics and communication skills. I am effective both solo or on a team. In my spare time I practice yoga, meditation, and painting. I am also passionate about the brain science behind mindfulness practices and keeping up with recent developments in AI.

Education

Washington State University

Pullman, WA

PH.D. IN ELECTRICAL ENGINEERING – Major - Power Systems, Minor - Computer Science

January 2019 - Present

- **Dissertation Title** — Frequency Regulation Market Service Provision from Distribution Connected Battery Energy Storage Systems

Washington State University

Pullman, WA

M.S. IN ELECTRICAL ENGINEERING – Major - Power Systems, Minor - Computer Engineering

August 2016 - May 2018

- **Thesis Title** — Distributed Energy Resource Impact Analysis on Integrated Transmission and Distribution System

Experience

Washington State University

Pullman, WA

GRADUATE RESEARCH ASSISTANT

August 2016 - Present

- Design/development of efficient regulation market techniques to enable transmission level frequency regulation service provision using distribution connected battery energy storage systems.
- Development of an optimal retail market model and impact assessment of demand-side renewable resource participation and its integration into the wholesale market.
- Designed and developed an open-source transmission and distribution (T&D) co-simulation platform to understand the impacts of increasing renewable penetrations on power systems operation.

Pacific Northwest National Laboratory

Seattle, WA

GRADUATE RESEARCH INTERN

May, '18 - Dec. '18, May, '20 - Aug. '20

- Developed deep reinforcement learning models to perform AC optimal power flow for the power transmission system optimization.
- Assisted in development of an open-source transactive energy software agent, TESP, to optimize the dynamics of distributed energy resources in a household and bid the excess energy into the energy and capacity markets.
- Performed real-time testing of TESP using PNNL's co-simulation tool (HELICS) along with multiple power system energy market components.
- Developed docker environment for a power microgrid restoration application.

Relevant Projects

FREQUENCY REGULATION MARKET SERVICE PROVISION FROM DISTRIBUTION CONNECTED ENERGY STORAGE SYSTEMS

2019-Current

- Proposed an efficient control model to utilize the flexibility of distribution connected battery energy storage systems in providing transmission frequency regulation services.
- Developed an optimal regulation market model at the distribution level that satisfies system level constraints while providing monetary benefits to the market participants.

TRANSACTIONAL ENERGY SIMULATION PLATFORM, TESP

2018

- In this project, I was involved in developing the energy market structure (real-time and day-ahead) for HVAC (heating, ventilation and air conditioning) systems.
- Resulted in development of consensual market bidding strategies and real-time testing/validation on large scale power system networks with energy market components.

Skills

Coding Languages Python, C, C++, MATLAB, HTML, JavaScript

Development Tools Keras, TensorFlow, OpenDSS, GridLAB-D, Matpower, PSAT, EnergyPlus, Docker

Awards and Honors

2018, 2019 **Paper Presentations**, IEEE Power and Energy Society General Meeting

2019 **Author**, Ph.D. Research Proposal to Pacific Northwest National Laboratory

2018 **2nd Place**, Graduate & Professional Student Association Research Scholarship Recipient

2017 **2nd Place**, Best Student Paper Award at North American Power Symposium

2015 **Awardee**, Level 1 Cambridge English Language Assessment in Business English