Andy **PUTRATAMA**

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EDUCATION

Now – October 2019 | **Ph.D. in Electrical Engineering**
Université Grenoble Alpes, France
- Thesis : *Towards Decentralization of Voltage Management Strategies for Smart Distribution Systems : Application to energy communities*
- *Bourse Exceptionnelle* awardee – A fully funded 3-year PhD program
- Graduation/PhD Defense is scheduled in September 2022.

August 2018 – September 2016 | **M.Sc. in Electrical Engineering for Smart Grids**
Grenoble Institute of Technology (Grenoble INP), France

July 2016 – August 2012 | **B.Sc. in Electrical Power Engineering**
Bandung Institute of Technology, Indonesia

EXPERIENCE

Now – October 2019 | **Grenoble Electrical Engineering Laboratory (G2ELab)** — Grenoble, France
Research & Development Engineer
- Implementation of optimization strategies for the operation and planning of distributed resources in the context of electrical networks and emerging energy markets – applications at the building to district/community scale.
- Modeling, simulation and optimization at the scale of consumers, networks and markets.
- Developed distributed optimization schemes that enable P2P control in community microgrids.
- Developed centralized and distributed AI-based algorithms (supervised machine learning) for parameter and topological learning of distribution grids.
- Collaborated with a French startup in developing management strategy for energy community.

April 2019 – September 2018 | **Schneider Electric** — Montbonnot-Saint-Martin, France
Power System Engineer for Solar and Storage Systems
- Led Power Plant Controller (PPC) development in 2 ×300 MW utility solar plant project in Dubai.
- Assisted sales engineers and provided tehcnical support to calls for projects.
- Conducted power system modelling and simulations to evaluate the feasibility of utility-scale solar projects under normal & different abnormal operating scenarios.
- Implemented PCC algorithms tailored to clients' requirements.
- Analyzed and evaluated worldwide grid codes for continuous development of Schneider's PPC.
- Provided technical supports and trainings to contractors and clients.

August 2018 – March 2018 | **Schneider Electric** — Grenoble, France
Microgrid Project Engineer
- Reviewed and analized global microgrid market trends.
- Drafted marketing and technical specifications of Schneider's microgrid controller solution for power management system (PMS).
- Acted as one of the main engineers for developing and prototyping Schneider's PMS. I developed the WebHMI solution and performed product testing/verification.

August 2017 – June 2017 | **Schneider Electric** — Grenoble, France
PV solution Architect Intern
- Collaborated with a team of engineers to provide technical solutions based on clients' needs.
- Delivered trainings on power system simulation softwares to engineering team.

June 2017 – May 2016 | **Winvi Dwi Energy** | Jakarta, Indonesia (Remote)

Power System Consultant

- Conducted small renewable-based power plant (< 10 MW) interconnection studies.
- Presented reports and provided technical advices to Indonesian electric utility company.

Projects

Centralized & Distributed Parameter and Topological Learning of Distribtion Grid — 2022

The aim of the project is to develop convex optimization & supervised machine learning algorithms to estimate grid parameters/impedances based on historical measurements data. The proposed methodology can precisely estimate global grid parameters (>95% accuracy) by only using households smart meter data.

Python | scikit-learn | TensorFlow | Machine Learning | Convex Optimization | Data Science

Market Management Strategy for Energy Communities — 2021

A collaboration work with a French startup (*Beoga.fr*). The project aims to develop an optimization-based method for management of energy communities that accounts forecast uncertainties & technical grid constraints, and to design attractive pricing and incentive schemes. The proposed solution led to 30 % energy cost reduction compared to traditional energy trading.

Python | CVXPY | Gurobi | Time series | Uncertainties | Local energy market | Regulations & Policies

Peer-to-peer (P2P) Control for Prosumer-to-Prosumer Energy Management & Trading — 2020

Developed coordination schemes using distributed convex optimization approach to enable direct prosumer-to-prosumer energy exchange & trading. It also allows a fully distributed energy management without interfering households security & privacy.

Python | Pyomo | Gurobi | Distributed optimization | Decomposition methods

Convex Optimal Power Flow for Distribution System & Microgrids — 2019

Developed multi-objective convex optimization algorithms to optimally compute operational setpoints of distributed energy resources (solar and storage systems) under different use cases & scenarios.

Python | Pyomo | Gurobi | CPLEX | Operations research | Convex optimization | Optimal power flow | Model predictive control

Interconnection Studies of Renewable-based Power Plants — 2016-2019

Conducted various interconnection & grid compliance studies of renewable energy-based generation projects (biomass, micro-hydro, solar) that cover static, dynamic/stability and short circuit analysis.

Digsilent Powerfactory | Matlab/Simulink | ETAP | PSS/E | PSCAD | HOMER Energy | Power system analysis

Publications

- A Three-Stage Strategy with Settlement for An Energy Community Management Under Grid Constraints (*IEEE Transactions on Smart Grid*, **2022**)
- Uncertainties Impact and Mitigation with an Adaptive Model-Based Voltage Controller (*Electrimacs*, **2022**)
- Parameter Tuning for LV Centralized and Distributed Voltage Control with High PV Production (*IEEE Madrid PowerTech*, **2021**)
- Adaptive Voltage Control Strategies for a Distribution Grid with Fair PV Curtailment (*Applied Energy*, **first round of review**)
- Reinforcement Learning for Robust Voltage Control in Distribution Grid Under Uncertainties (*Sustainable Energy, Grids and Networks*, **first round of review**)

Technical Skills

Programming Languages & Frameworks	Python • SQL • Git • GitHub • LaTeX
Mathematical Programming & Modelling	Pyomo • CVXPY • Matlab/Simulink • Gurobi • CPLEX
Data Science	Numpy • Pandas • Matplotlib • Scipy • Scikit-learn • Tensorflow • Keras • Jupyter Notebook
Power System & Energy Softwares	Digsilent Power Factory • Homer Energy • PSS/E • ETAP • PSCAD • MATPOWER
Others	Microsoft Office • Visio • Wordpress

Language Skills

- Indonesian — Native
- English — Fluent
- French — Intermediate (B1-Level)

Miscellaneous/Interests

- **Website team** @ Innovdoc.org
- **Author** @ konsepteknik.com – An Indonesian science & engineering blog
- Tennis, running, football, fitness
- Musical instruments (guitar & piano)