Lauren Ngan

Education

California Polytechnic State University – San Luis Obispo
Bachelor of Science in Mechanical Engineering, June 2008
Master of Science in Mechanical Engineering, September 2009
GPA: 3.8

Work Experience

Arevon Energy
Director, Performance Engineering (January 2023 - present)
Principal Performance Engineer (August 2021 - January 2023)
Originate performance engineering function for utility-scale solar and storage in both early and late stage development. Specific responsibilities include:

- Define technical energy underwriting standards for solar and storage assets
- Lead negotiation of performance testing exhibits with EPC and equipment supply counterparties
- Collaborate with owner's engineers and independent engineers
- Board and executive level presentations
- Build and manage a team of specialist engineers focused on performance engineering.

Generate Capital
Performance Engineer (July 2020 - August 2021)
Launch performance engineering function at Generate Capital, a leading sustainable infrastructure company. Specific responsibilities include:

- Diligence energy predictions for community solar portfolio acquisitions.
- Recommend P50 underwriting standard for solar energy predictions.
- Brief executive team on industry-standard snow loss models, historical snow loss analysis and forward-looking risk assessment.
- Define and spec scalable data model for anaerobic digestion facilities that can be translated to other novel asset types.
- Develop battery energy storage control algorithms and associated models/tools needed to predict PV+S performance.
- Implement data driven solar asset management functions (i.e. onboarding with Power Factors, washing CBA methods).

First Solar
Performance Engineer IV (December 2018 – July 2020)
Product Manager Warranty and Simulation Software (July 2015 – December 2018)
Performance Engineer III (March 2014 – July 2015)
Performance Engineer II (December 2010 - March 2014)
In my time as a product manager, I managed and executed the Global Product Strategy for First Solar's suite of product and service warranties and guarantees to enable responsible global market expansion. Added responsibility in 2017 for PlantPredict, First Solar's software product aimed at accurate and efficient utility-scale PV energy predictions. Specific responsibilities included:

- Develop warranties, guarantees and warranty and guarantee risk modeling tools.
- Develop and maintain roadmaps, budgets and resourcing plans for PlantPredict and report out to the Steering Committee.
- Manage day-to-day activities and operations of 5+ software developers, analysts and designers.
- Act as product owner in agile scrum software development process.

In my time as a performance engineer, I had increasing technical responsibility related to evaluating performance of utility-scale solar systems. I led a group of two other engineers and analysts acting as resident experts on topics relating to field performance of products, energy predictions and PV performance analysis. Specific responsibilities included:

- Define inputs to PV system energy prediction models like PVsyst.
- Interact with owner's and financier's independent engineers regarding energy predictions inputs and assumptions.
- Review utility scale PV system contracts, especially performance guarantee exhibits.
- Develop a benchmarking program to validate First Solar internal PV system prediction software.
- Develop field and lab test plans to determine the effect of system/module changes on PV system performance and energy production
- Evaluate customer system performance complaints and work with customers to resolve system issues

SunPower Corporation
Senior Performance Engineer (October 2009 to November 2010)
Act as resident SunPower expert on topics relating to field performance of products, energy predictions and PV performance analysis.

Managed daily activities of 1-2 overseas analysts supporting energy prediction benchmarking and performance analysis programs.

Master's Thesis – Rayleigh Flow of Two-Phase Nitrous Oxide as a Hybrid Rocket Nozzle Coolant
Graduate Student (October 2009 to October 2010) *https://digitalcommons.calpoly.edu/theses/284/*

Skills

- Matlab, Python, JMP, PVsyst, SQL, Snowflake, Tableau, Salesforce, SolarAnywhere, Github, Microsoft suite of tools
- PV and BESS system modeling, EPC contracting and negotiation, PV acceptance testing (capacity, PR, energy, and others), BESS acceptance testing (RTE, capacity, etc.), solar and storage major equipment diligence and testing

Certifications and Awards

- California Engineer in Training certified #128993
- Salutatorian, Paso Robles High School, Class of 2004
- Cal Poly Graduation with Distinction Nominee (June 2009)
- Cal Poly Outstanding Graduate Student Nominee (April 2010)
- Cal Poly President's Honor List (2005-2006, 2006-2007 and 2007-2008, 2008-2009)
- Best Poster Award at IEEE PVSC conferences: 38th (author), 39th (co-author) and 40th (co-author)
- Sub-area chair at 40th IEEE PVSC conference
- Three-time First Solar CEO award winner (2016 Business Enablement, 2016 Teamwork & Collaboration, 2017 Business Enablement)
- Paso Robles Lions Club youth speech contest judge

Publications

- Co-author, BMES conference paper: "Differential Regulation of Immature Articular Cartilage Compressive Moduli and Poisson's Ratios by In Vitro Stimulation with IGF-1 and TGF- β1."
- Co-author, 25th EUPVSEC paper: "High-Confidence Prediction of Energy Production from High-Efficiency Photovoltaic Systems"
- Co-author, 25th EUPVSEC paper: "Variability Comparison of Large Scale Photovoltaic Systems across Diverse Geographic Climates"
- Co-author, 25th EUPVSEC paper: "Performance and Reliability of Modules with Anti-Reflective Coated Glass"
- Co-author, 36th IEEE PVSC paper: "Methods of Integrating a High Penetration Photovoltaic Power Plant into a Micro Grid"
- Co-author, 37th IEEE PVSC paper: "Evaluation of Photovoltaic System Power Rating Methods for a Cadmium Telluride Array" 2013
- Author, Journal of Photovoltaics Volume 3 Issue 1, January 2013: "Changes in Cadmium Telluride Photovoltaic System Performance due to Spectrum" DOI 10.1109/JPHOTOV.2012.2226868
- Co-author, 38th IEEE PVSC paper: "Thermal Modeling Accuracy of Hourly Averaged Data for Large Free Field Cadmium Telluride PV Arrays"
- Author, 39th IEEE PVSC paper: "Increased Energy Production of First Solar Horizontal Single-Axis Tracking PV Systems without Backtracking"
- Co-author, 39th IEEE PVSC paper: "Improving Hourly PV Power Plant Performance Analysis: Irradiance Correction Methodology"
- Author, 40th IEEE PVSC paper: "Performance Characterization of Cadmium Telluride Modules Validated by Utility Scale and Test Systems"
- Co-author, 40th IEEE PVSC paper: "Self-Reported Field Efficiency of Utility-Scale Inverters"
- Co-author, 40th IEEE PVSC paper: "Regional Atmosphere-Solar PV Interactions"
- Co-author, 40th IEEE PVSC paper: "PV System Energy Test"
- Co-author, Journal of Photovoltaics Volume 5 Issue 1: "A Time Dependent Model for Utility Scale PV Module Temperature" DOI 10.1109/JPHOTOV.2014.2361653
- Co-author, 42nd IEEE PVSC paper: "Accuracy of Energy Assessments in Utility Scale PV Power Plants using PlantPredict"
- Co-author, 42nd IEEE PVSC paper: "Comparison of the Effects of Spectrum on Cadmium Telluride and Monocrystalline Silicon Photovoltaic Module Performance"
- Co-author, 42nd IEEE PVSC paper: "Understanding Next Generation Cadmium Telluride Photovoltaic Performance due to Spectrum"