Venkata (Sai)charan Thatipamula

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SKILLS

Programming Languages & Simulators: Python - Tensorflow, PyTorch, SciPy; MATLAB & Simulink; Julia; COMSOL; Aspen Plus and HYSYS; GAMS; M-Star

Relevant Coursework: Electro-chemical Energy Storage Systems: Modeling and Estimation, Convex Optimization, Machine Learning for Sequences, Computational Material Science, Fluid Mechanics & Heat Transfer, Thermodynamics

EDUCATION

Stanford University   Stanford, CA
Ph.D. Candidate, Energy Science and Engineering   *Sept. 2022 – June 2026 (Tent.)*
- **Concentrations**: Physics-Based Modeling, Optimal Design, Electro-chemical Systems, Parameter Estimation
- **Awards and Certificates**: Chevron Energy Fellowship 2024-25, Certificate for Sustainable Energy (in progress)
- **Teaching**: TA for ENERGY 201C - Spring 2024; Stanford Energy Student Lecture - Summer 2024
- **Activities**: Graduate Student Advisory Council 2023-34, ESE DEI Representative 2024-25, Stanford Golf Club

Massachusetts Institute of Technology (MIT)   Cambridge, MA
M.S., Chemical Engineering Practice   *Sept. 2020 – June 2022*
- **Concentrations**: Electrochemical Energy Systems, Nanotechnology, Transport Phenomena
- **Awards**: Chemical Engineering Graduate Fellowship

American University of Sharjah   Univerisity City, U.A.E.
B.Sc., Chemical Engineering (Summa cum Laude)   *Feb. 2015 – June 2018*

International School of Berne   Berne, Switzerland
International Baccalaureate   *June 2014*

RECENT WORK EXPERIENCE

MIT Practice School Consultant - AstraZeneca   Gaithersburg, MD
BioPharmaceutical Development and DP Simulation   *Feb. 2022 – May. 2022*
- **Keywords:** Computer Vision, Protein Aggregation
- Developed a computer vision tool to predict characteristic properties during a stem cell propagation
- Studied agitation-induced protein aggregation and correlated results with simulated liquid surface parameters

MIT Practice School Consultant - Saint Gobain   Northborough, MA
Abrasives and Building Materials   *Aug. 2021 – Nov. 2021*
- **Keywords:** Physics-based simulation, Root cause analysis
- Established computational thermal simulation for an abrasive grinding process, and validated with $\pm$ 8% accuracy.
- Used design of experiments to find the root cause of a defect in a roofing product and recommended process solutions

Process Engineer - Bilfinger Tebodin Middle East   Abu Dhabi, U.A.E.
Simulation, Front End Engineering and Design & Techno-economic Analyses   *Dec. 2018 – May. 2020*
- **Keywords:** Hydraulic and Surge simulations, Techno-economic Analyses, FEED
- Performed hydraulic and engineering simulations for clients in the Middle East's energy sector
- Conducted largely independent design, techno-economic and energy optimization analyses for new & existing plants
- Liaised with clients and vendors, led 3-4 person teams in simulation-based projects including planning and budgeting

RECENT RESEARCH EXPERIENCE

Research Projects, Dr. Simona Onori, Stanford University   Stanford, CA
Modeling and Parameter Estimation for Technologies in the Energy Transition   *Sept. 2022 – Present*
- **Keywords:** Physics-Based Modeling, Parameter Estimation, Machine Learning
- Optimal design and state estimation for LFP cells in microgrid applications (Chevron Energy Fellowship)
- Parameterizing high C-rate and temperature models for Li-ion batteries (Toyota Research Institute)
- Studying Electrochemical Impedance Spectroscopy (EIS)-based machine learning models as tools to estimate degradation and State of Health in Li-ion cells (Stanford SystemX and Nuvoton)
- Developed a 1-D pseudo-steady state control-oriented model with appropriate parameterization for catalyzed Gasoline Particulate Filters (GPFs) - a necessity for the mitigation of particulate matter emissions (NSF)