

## Prashant Nagapurkar

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Objective	To secure a full time opportunity in the area of Techno-Economic Optimization and Environmental Life Cycle Assessment (LCA) of chemical and manufacturing processes	
Education	Missouri University of Science and Technology, Rolla, MO <b>PhD Chemical Engineering</b> <b>EIT Chemical – Registered in Texas (PE Exam passed)</b>	Jan 2019 <b>GPA: 3.58/4.0</b>
	Missouri University of Science and Technology, Rolla, MO <b>M.S. Chemical Engineering</b>	Dec 2015 <b>GPA: 3.72/4.0</b>
	University of Pune, Pune, India <b>Bachelors in Chemical Engineering (B.E.)</b>	May 2011 <b>GPA: 3.2/4.0</b>
Acad./Gov. Experience	Oak Ridge National Laboratory <b>Research Staff Member</b>	Oak Ridge, TN Aug 2021 – Present
	<ul style="list-style-type: none"><li>• Conducted LCA of integrated chip manufacturing process to compute the embodied energy, economic feasibility and environmental impacts using OpenLCA.</li><li>• Conducted a techno-economic analysis (TEA) and environmental LCA of coal to carbon fiber process using OpenLCA.</li></ul>	
	Oak Ridge National Laboratory <b>Postdoctoral Associate</b>	Oak Ridge, TN Oct 2019 – Present
	<ul style="list-style-type: none"><li>• Conducted analyses to determine economic competitiveness of US with regards to other countries such as China, Taiwan, Korea, etc.</li><li>• Conducted a techno-economic analysis and environmental LCA of processes such as coal to carbon fiber, coal char to graphite process using OpenLCA.</li></ul>	
	Missouri S&T-Department of Chemical Engineering <b>Researcher</b>	Rolla, MO Jan 2019 - Sep 2019
	Techno-economic optimization and environmental assessment (LCA) of microgrids using Simulated Annealing, Genetic Algorithm and Artificial Neural Networks	
	<ul style="list-style-type: none"><li>• Utilizing Simulated Annealing, Genetic Algorithm and Artificial Neural Networks to conduct Microgrid Techno-Economic Optimization for developing countries in Africa and Asia.</li></ul>	
Doctoral Dissertation	Missouri S&T- Energy Research and Development Center <b>Graduate Research Assistant</b>	Rolla, MO Aug 2015 – Jan 2019
	Techno-economic optimization and environmental assessment (LCA) of a microgrid using Genetic algorithm and Artificial Neural Networks for US cities	
	<ul style="list-style-type: none"><li>• Developed a dynamic energy generation and consumption model of a small electric grid (microgrid) consisting of solar PV, wind turbine, lead acid battery, biodiesel generator, fuel cell and electrolyzer</li><li>• Optimized the size of the microgrid to provide electricity to a small community using stochastic optimization technique (Genetic algorithm) on Matlab software</li><li>• Used machine learning algorithms such as artificial neural networks, complex trees, SVM, etc. to model and predict electricity consumption based on historical data</li><li>• Conducted a techno-economic assessment of a supercritical biodiesel production process for a plant situated in the Midwest region of the US using Aspen Plus</li></ul>	

Industry Experience	<p>Shell Oil Company  <b>Post Graduate Intern – Materials &amp; Corrosion</b></p> <ul style="list-style-type: none"> <li>• Gained experience with the materials selection process for subsea equipment (pipelines, etc.) in deepwater oil production systems to comprehend its technical and commercial requirements</li> <li>• Developed a Standard Operating Procedure (SOP) for materials selection process by referring Shell’s design engineering practices (DEPs) and interacting with subject matter experts and managerial colleagues. The developed SOP has a potential of reducing the man-hours spent in the design phase of a new project resulting in significant annual savings</li> <li>• Studied the causes of corrosion in pipelines and identified ways to mitigate them by adopting corrosion resistant materials and methods</li> </ul> <p>Praj Industries Ltd  <b>Process Engineer</b></p> <ul style="list-style-type: none"> <li>• Designed mass and energy balances, PFDs, P&amp;IDs, equipment lists, and equipment layouts for ethanol fermentation and distilleries plants (bio refineries)</li> <li>• Scaled up ethanol distillation processes and conducted techno-economic analyses using softwares such as Aspen Hysys, Chemcad, HTRI</li> <li>• Developed an in-house techno-economic software tool (BREWSOFT™) for beer manufacture process on Visual Basic. NET platform</li> </ul>	<p>Houston, TX  May 2016 - Aug 2016</p> <p>Pune, India  Feb 2012 - Jul 2013</p>
Teaching Experience	<p>Taught courses like Staged Mass Transfer, Applied Computational Fluid Dynamics, Life cycle assessment (LCA) of Energy Systems to undergraduate and graduate students.</p>	
Volunteering Experience	<p>Volunteered to give a presentation to students of Eagleton Middle School, TN as part of ORNL’s National Engineer’s Week in February of 2021.</p>	
Coding skills	<p>Matlab, Visual basic.net, Fortran, Python, R Language</p>	
Software tools	<p>Aspen Plus, Hysys, Chemcad, Unisim, HTRI, Ansys Fluent, System Advisor Model, HOMER, Powersim, MS Office, Polymath, Mathcad, Minitab, GREET, Gabi</p>	
Other interests	<p>Gaining experience in areas of machine learning, deep learning, statistics and data visualization</p>	
Peer-Reviewed Publications	<p><b>Prashant Nagapurkar</b>, Sujit Das, ‘Manufacturing Economic and Energy of Integrated Circuits in Information and Communication Technology’, Elsevier Journal of Sustainable computing: Informatics and Systems, January, 2021. (Impact Factor – 3) (Submitted and under review)</p> <p>Shane Terry, <b>Prashant Nagapurkar</b>, Sujit Das, ‘Leveraging flexible smart manufacturing to accelerate industrial supply chain recovery’, Smart and Sustainable Manufacturing systems, ASTM international, October, 2020.</p> <p><b>Prashant Nagapurkar</b>, Joseph Smith, ‘Techno-Economic Optimization and Environmental Life Cycle Assessment (LCA) of Microgrids located in the US using Genetic Algorithm’, Elsevier’s Energy Conversion and Management Journal, 2019, 181, Pg. 272-291 (Impact Factor – 6.3).</p> <p><b>Prashant Nagapurkar</b>, Joseph Smith, ‘Techno-economic Optimization and Social Costs Assessment Microgrids in the US using Genetic Algorithm and Artificial Neural Networks: A Case Study for Two US Cities’ – Elsevier’s Journal of Cleaner Production, 2019, 229, 552-569 (Impact Factor – 6.2).</p> <p><b>Prashant Nagapurkar</b>, Joseph Smith, ‘A review of the risks to water resources due to unconventional Shale gas development in the US – An application to the Kurdistan region of Iraq’, International Conference on Environmental impacts of the Oil and Gas Industries: Kurdistan Region of Iraq as case study, April 17-19, 2017, Kurdistan, Iraq</p>	

**Prashant Nagapurkar**, Shyam Paudel, Joseph Smith, 'Improving Process Sustainability and Profitability for a large US Gray Iron foundry', Green Growth and efficient Resource Use, Paper #1284, 33rd System Dynamic Conference of System Dynamics Conference, July 19-23, 2015, Cambridge, USA.

**Prashant Nagapurkar**, Joseph Smith, 'Techno-economic and environmental life cycle assessment (LCA) of a supercritical biodiesel process for a plant located in the US'– Under preparation.

Conference Presentations **Prashant Nagapurkar**, Sujit Das, Life Cycle Energy and Economic Assessment (LCA) of Integrated Circuit Manufacturing, American Center for Life Cycle Assessment (ACLCA), 2020.

**Prashant Nagapurkar**, Joseph Smith, 'Techno-economic assessment of a supercritical biodiesel process for a plant located in the Midwest region of the US', April 22-26, 2018, Orlando, US.

**Prashant Nagapurkar**, Shyam Paudel, Joseph Smith, 'Improving Process Sustainability and Profitability for a large US Gray Iron foundry", AIChE Annual Meeting, November 16-21, 2014, Atlanta, US.