

## Himendra Perera

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### Experience

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#### PhD Candidate

August 2019 – Present

Chemical Engineering Department, NC State University

Raleigh, NC

##### *Process Development*

- Built a seed coating apparatus for uniform coating of seeds in electrospinning operations while minimizing external vibration.
- Fabricated a high temperature/pressure additive extruder system, developing inline characterization methods and in house process control (C++ based).
- Designed a silicon piezoelectric sensor solution, using a Python/C++ based architecture for real time fluid property analysis and micrometer level probing.
- Built bench scale process of Eastman Chemical's supercritical CO<sub>2</sub> polymer foaming process for cheaper process optimization.

##### *Modeling/Software Development*

- Adapted FEA/FVM software, including OpenFOAM, COMSOL, and ANSYS, for computational modeling of failure modes in composite materials and reduced prototyping costs by 75%.
- Led a cross-functional team to develop machine learning models for cancer detection and particle size analysis using YOLO in TensorFlow/PyTorch.
- Implemented physics informed ML models in large scale chemical process with feedback from cross functional teams of process operators and scientists at Eastman Chemical.

#### Research and Development Engineer

January 2017 – August 2019

Center for Advanced Engineering Fibers and Films

Clemson, SC

- Implemented C++ software for motion control of production polymer processing machinery, reducing faults and increasing production speed by 25%.
- Optimized heat management in novel nanocomposite materials for use in prosthetics.

#### Research & Development Engineer

May 2018 – August 2018

Sonoco Products Company

Hartsville, SC

- Led two R&D projects in packaging, collaborating with operators and technicians to develop technology that reduced plastic usage by 50%, saving upwards of \$10 million annually.
- Collaborated with customers in business and medical domains as well as global VPs, aligning customer priorities with strategic business objectives.

### Education

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#### PhD Chemical and Biomolecular Engineering

3.89/4.0

NC State University

#### B.S. Chemical Engineering

3.98/4.0

Clemson University

### Skills

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- Programming: Python, Java, C++, C, SQL, JavaScript, HTML, Linux, Git, Signal Processing
- Data science: Pandas, TensorFlow, PyTorch, DeepXDE, SciKit-learn, OpenCV, NumPy, LLM
- Analytical skills: Rheology, SEM, TOF-SIMS, FTIR, DSC, DMA, confocal microscopy, TGA,
- Engineering Software: ANSYS, OpenFOAM, SOLIDWORKS, Arduino, Raspberry PI, Blender,