

Lafayette, IN

RATHZIEL RONCANCIO REYES

ironcanc@purdue.edu

RRR

+1 765 414 9215

Education:

2017 Purdue University, Ph.D. Student in Mechanical Engineering - GPA: 3.7/4.0
2012-2017 Universidad De Colombia Nacional, B.Eng. Mechanical Engineering, –
Thesis Title: “Experimental study of CO₂ biomass gasification using Iron as a catalyst under high-pressure environment” GPA: 4.1/5.0

Research Experience

2020 *Purdue University - Research assistant*
CO₂ char gasification using alkali catalyst mixtures
Designed gasification reactor for the distribution of CO₂ and N₂

2019 Full-flow staged combustor
Designed and numerically validated using Siemens NX the test stand of a full-flow staged combustor.
Installed and connected tubing, and computer controlled valves for oxidizer and fuel distribution.

2018 Flame spread rate over a fuel pool
Prepared and conducted the experiments to study the flame spread rate on top of different alternative aviation fuels varying its initial temperature.
Evaluated and reported the flame spread rate from the collected data.

2017 Turbulent premixed combustion of methane with CO₂ addition
Prepared and conducted the experiments to study the effects on pocket distribution of CO₂ addition to turbulent premixed flames of methane-air.
Processed and reported pocket distribution for flames with 0%, 5% and 10% of CO₂ addition.

2016 Undergraduate Research Assistant
Executed complete restoration of the Data Acquisition System of the gasification laboratory.
Implemented new experimental procedures aiming at overall safety.

2015 *Universidad Nacional de Colombia - Variation of Mechanical Properties of Clay with Firing Temperature*
Studied the variation in the compression properties of ceramic materials with varying cooking temperature.
Used XRD, Xray fluorescence and Microscopy to characterize the obtained structure.

Journal Articles

Roncancio, R., Ulcay, M. S., Arango, J., Gore, J., “Experimental study of CO₂ corn stover char gasification using Iron as a catalyst under high-pressure environment”. vol. 267, Fuel, 2020.

Conference presentations

Roncancio, R., Navarkar, A., Hasti, V.H., Goyal, V., Gore, J. “Effect of carbon nanotubes addition on the Flame Spread Rate over a Jet A pool” 11th US National Combustion Meeting, 2019.

RRR

Goyal, V., **R. Roncancio**, J. Kim, A. Navarkar, V. Hasti, and Gore, J. "Effect of initial fuel temperature on flame spread rate of alternative aviation fuels," 11th US National Combustion Meeting, 2019.

Kim, J., **Roncancio, R.**, Gore, J., "Correlation between Integral Length Scale and Unburned Pocket Formation in CH₄/air Premixed Turbulent Flames" 11th US National Combustion Meeting, 2019.

Roncancio, R., Ulcay, M. S., Arango, J., Gore, J., "Experimental study of CO₂ biomass gasification using Iron as a catalyst under high-pressure environment". Spring Technical Meeting Central States Section of The Combustion Institute, 2018.

Teaching Certificates

2019 *Foundations in College Teaching*
Center of Instructional Excellence, Purdue University

Teaching Experience

2020 - 2017 *Purdue University - Teaching assistant*
Introduction to Mechanical Engineering Design
Guided 12 design projects from the definition of the problem to the manufacture or a prototype.
Thermodynamics class
Coordinated a wide course team to achieve a reliable and organized workflow.
Assisted students through encountered difficulties striving to improve their overall learning process. Proctored and graded exams.

2017 *Universidad Nacional de Colombia, Laboratory Assistant, Internal combustion engines Laboratory*
Classified and compiled maintenance information using a systematic approach.
Proposed new organization schemes and supported research endeavors.

Industry Experience

2016 *FedePanela - Design of rapid sugar-cane juice boiler*
Designed a pressure vessel for the heat exchange between steam and sugarcane juices.
Constructed a sugar-cane juice dispenser and distribution system aiming to even and rapid flow.

2015 *BioBolsa SAS*
Lean Manufacturing Analysis of Textile Production
Applied the concepts of 6-sigma and lean manufacturing to a textile manufacturing company for time improvement and waste reduction.
Developed the value stream mapping and Standard Worksheet Sheet for the key processes in bag production.

RRR

Awards:

Colciencias doctoral scholarship, Colfuturo Loan-Scholarship, Undergraduate Research Experience Purdue-Colombia (UREP-C) fellowship, "Best GPA Program" Portuguese Course of 300 hours, Universidad Nacional de Colombia, Bogota, Colombia.

Community Service

Official Mechanical Engineering Graduate students Association (OMEGA)
Website and Social Media Coordinator
Create social media websites for the organization (Facebook, Instagram)
Implement official email for communication.

Colombian Student Association at Purdue (CSAP)

Secretary

Summarize and write the minutes of the meetings and events held.

Coordinate and ensure the timely development of the meetings held by the association board.

Relevant Skills

Languages: Spanish / English ToEFL iBT Score: 110 / Portuguese B1 / German A1

Software: Autodesk Inventor, Autodesk Inventor Mechanical Simulation, Siemens NX 11, MathWorks Matlab, CATIA V5, C++, Python.