

# Carlos Felipe **Alcala Perez**

Milwaukee, WI. | ☎ (+1) 414-426-6814 | ✉ [alcala21@gmail.com](mailto:alcala21@gmail.com) | 🏠 [www.alcala21.org](http://www.alcala21.org) | 📷 [alcala21](#) | 🌐 [alcala21](#) | 🎓 Carlos F. Alcala

## Data Scientist

### Summary

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Accomplished Data Scientist with extensive experience developing and implementing data-driven and machine learning solutions in the Building Efficiency and Chemical industries. Highly skilled in data gathering, transformation and visualization, as well as hypothesis testing, experimental design, analysis, development and deployment of algorithms. Award winning scholar with multiple patents and research publications.

### Expertise

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- Multivariate Statistical Analysis
- Machine Learning
- Mathematical Analysis
- Data Analytics and Visualization
- Application Development
- Research and Development

### Experience

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#### Johnson Controls

Oct. 2011 - Jan. 2020

PRINCIPAL RESEARCH ENGINEER

Milwaukee, WI

Dec. 2017 - Jan. 2020

- Utilized advanced optimization, machine learning and data analytics methods to improve the efficiency of heating, ventilation and air conditioning (HVAC) systems.
- Key role in the transfer of newly developed technology into products and applications.
- Multiple patents granted.

SENIOR RESEARCH ENGINEER

Milwaukee, WI

May 2015 - Dec. 2017

- Developed methods for monitoring the performance of PID controllers, detection of steady state operation of HVAC equipment, and reduction of energy consumption in wireless thermostats while keeping acceptable comfort standards. Applied advanced mathematical tools as well as artificial intelligence, machine learning and traditional statistical methods to achieve business goals.

SENIOR RESEARCH ENGINEER

Mexico City, Mexico

Jan. 2013 - May 2015

- Developed and tested data-driven methods for fault detection and diagnosis in connected chillers.

SENIOR RESEARCH ENGINEER

Milwaukee, WI

Oct. 2011 - Jan. 2013

- Developed a method for adaptive sampling of PID controllers. Analyzed vast quantities of test data, and automated the report generation for these tests.

### Internship Experience

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#### The Dow Chemical Company

Freeport, TX

May 2010 - Aug. 2010

SUMMER RESEARCH INTERN

- Developed a VBA application for multivariate statistical monitoring of continuous and batch processes.

#### Capstone Technology

Seattle, WA

2006 - 2009

SUMMER ENGINEERING INTERN

May. 2009 - Aug. 2009

- Developed a multivariate image analysis application to monitor combustion efficiency in furnaces.

SUMMER ENGINEERING INTERN

May. 2007 - Aug. 2007

- Developed a multivariate statistical application for statistical modeling and prediction in chemical processes.

SUMMER ENGINEERING INTERN

May. 2006 - Aug. 2006

- Developed a multivariate statistical application for detection and diagnosis of sensor and process faults.

## NMC North Microelectronics

Beijing, China

Jun. 2008 - Jul. 2008

### SUMMER ENGINEERING INTERN

- Developed a multivariate statistical application for monitoring the operation of a semiconductor manufacturing process.

## Education

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### MicroMasters in Statistics and Data Science

Online

Sept. 2020 - Oct. 2021

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

### Doctor of Philosophy in Chemical Engineering

Los Angeles, CA

Aug. 2007 - Aug. 2011

UNIVERSITY OF SOUTHERN CALIFORNIA

- Awarded a Roberto Rocca Fellowship.

### Master of Science in Chemical Engineering

Austin, TX

Aug. 2005 - May 2007

THE UNIVERSITY OF TEXAS AT AUSTIN

- Fulbright Scholarship Recipient.

### Bachelor of Science in Chemical Engineering, summa cum laude

Ciudad Madero, Mexico

Aug. 1999 - Dec. 2003

INSTITUTO TECNOLÓGICO DE CIUDAD MADERO

## Skills

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**Programming** R, Python, SQL, Matlab, VBA, C#

**Markup**  $\LaTeX$ , Markdown, RMarkdown

**Frameworks/Libraries** PyTorch, Tensorflow, numpy, pandas, dplyr, ggplot2, tidyverse

**Applications** Simulink, Dymola, RStudio, Docker, Git, Github, VS Code, Sublime Text, Office 365

**Languages** English, Spanish (native)

## Certifications

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### Computational Thinking using Python

MIT

June, 2020

EDX

Credential ID: 03ee77749a44490190b0b25b24876e31

### Statistics with R

Duke University

Oct. 29, 2018

COURSERA

Credential ID: UWG3PS5EXMBJ

### Machine Learning

University of Washington

Feb. 1, 2017

COURSERA

Credential ID: 2VHFDHW5GUK6

### Data Science

Johns Hopkins University

Apr. 20, 2016

COURSERA

Credential ID: W9DB45S3CGDZ