# nico**casale**

m.s. electrical engineering, they/them

## contact

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**github**: n-casale
**wikipedia:** ncasale

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## coding

CUDA/HLSL
Java/Groovy
MATLAB
C++/C#
Python
LaTeX
C

## languages

**native**
english
**skilled**
spanish
**basic**
german
french
italian

## education

| 2017-2018 | **M.S.** Electrical Engineering (3.74 GPA) | North Carolina State University (NCSU) |
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*non-thesis*, courses in data science, machine learning, random processes, digital image/signal processing, linear algebra, computer architecture

| 2012–2017 | **B.S.** summa cum laude (3.84 GPA) | NCSU |
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Electrical Engineering, *specialization in Computer Engineering*

| 2008–2012 | **high school diploma** | Independence/Butler High Schools |
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score of 5/5 on six AP exams, Academy of International Studies student

## experience

| 05 2018 – | **junior metadata software developer** | Earth Resources Technology (ERT) |
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ERT contracts with the National Oceanic and Atmospheric Administration (NOAA) to make its swathes of data available to the public. Responsibilities include software tool development, metadata generation and maintenance

| 2016-2017 | **independent researcher** | NCSU |
|---|---|---|

GPU acceleration of an algorithm using NVIDIA's CUDA/C++, under guidance of Dr. Dror Baron. ~28x speedups achieved with a Tesla K80 for multiprocessor approximate message passing (MP-AMP)

| 08-12 2014 06-12 2015 | **cooperative education intern** | Analog Devices, Inc., Greensboro, NC |
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worked on communications infrastructure team under John Oates, Systems Engineer. Improved project through three hardware revisions

## presentations

| 08 2017 | **poster at undergraduate research symposium** | NCSU |
|---|---|---|

GPU implementation of row-wise approximate message passing (AMP)

| 04 2017 | **poster at senior design day** | NCSU |
|---|---|---|

Keg It Out: an IoT beer monitoring service for brewers to optimize distribution. culmination of the Engineering Entrepreneurship Program for senior design

## projects

| 2017 – | **computer graphics in C++, LaTeX, and MATLAB** | IG (some code on GitHub) |
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using mathematics and image processing concepts to generate art; working with OpenFrameworks (C++), MATLAB, and Google's search API in python

| | | |
|---|---|---|
| 2018 | **music review website in React (Javascript)** | github |
| | a project built with friends to host our gratuitous opinions on music | |
| 01-06 2018 | **open source project contributions in python and C++** | github |
| | OpenMined is a homomorphically-encrypted federated learning platform that seeks to provide a secure and sustainable way of training neural networks | |
| 02-05 2018 | **linear discriminant analysis and decision trees in MATLAB** | github |
| | for ECE 759, LDA and Decision Trees were trained on MNIST and Ext. Yale Face Database B to garner an understanding of machine learning techniques | |
| 2017 | **orthographic projection in MATLAB** | ECE 592 (digital image processing) |
| | given a photo of a box and its closest corner in image, program finds faces of box and creates a 3-D model | |
| 2016 | **internet of things (IoT) 'car'** | ECE 306 (embedded systems) |
| | built a small remote-controlled car with various I/O devices to a Texas Instruments MSP430 Microcontroller, programmed in C | |

## **vol**unteering

| | | |
|---|---|---|
| 08 2018 – | **Tranzmission Prison Books Project** | asheville |
| | providing books and support for marginalized prison populations | |
| 03 2018 | **served at a pay-what-you-can restaurant** | A Place At The Table |
| | served at a community restaurant with a sliding pay scale, starting at $0 | |
| 2016 | **family STEM nights** | local elementary & middle schools |
| | facilitated interactive engineering experiments for K-12 students | |
| 2016 | **peer tutor for Eta Kappa Nu (HKN, ECE honor society)** | NCSU |
| | offered free help to undergraduates in ECE courses | |
| 2013-2016 | **SOUL Garden volunteer** | NCSU |
| | student-run garden which donates food to those in need | |

## **ext**ras

| | |
|---|---|
| 2016-2018 | **facilitator, Wake Up Raleigh** |
| | mindfulness group with weekly events, community engagement and leadership |
| 2013-2015 | **facilitator, Buddhist Philosophies Club** |
| | organized weekly events, discussions; community engagement and leadership |
| 2016-2017 | **Co-Op ambassador** |
| | informed students about the Co-Op program at State; opportunity to demonstrate leadership and character |
| 2008 – | **poetry & music writing** |
| | published in four annual editions of NCSU's artistic and literary book |