

# nicocasale

m.s. electrical engineering, they/them

## contact

ncasale94@gmail.com  
n-casale.github.io  
**github:** n-casale  
**wikipedia:** ncasale

(704) 839-1311

## coding

CUDA/HLSL  
C++/C#  
MATLAB  
Python  
Java  
L<sup>A</sup>T<sub>E</sub>X  
C

## languages

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

## interests

GPU programming, machine learning, computer graphics

## education

- 2017-2018 **M.S. Electrical Engineering (3.74 GPA)** North Carolina State University (NCSU)  
*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  
Electrical Engineering, *specialization in Computer Engineering*
- 2008-2012 **high school diploma** Independence/Butler High Schools  
score of 5/5 on six AP exams, Academy of International Studies student

## experience

- 05 2018 – **junior metadata programmer** Earth Resources Technology (ERT)  
ERT contracts with the National Oceanic and Atmospheric Administration (NOAA) to make its swathes of data available to the public
- 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 multi-processor approximate message passing (MP-AMP)
- 08-12 2014  
06-12 2015 **cooperative education intern** Analog Devices, Inc., Greensboro, NC  
worked on communications infrastructure team under John Oates, Systems Engineer. Improved project through three hardware revisions

## projects

- 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

- 2017 – **computer graphics in C++, L<sup>A</sup>T<sub>E</sub>X and MATLAB** instagram (some code on GitHub)  
using mathematics and image processing concepts to generate art; working with OpenFrameworks (C++), MATLAB, and Google's search API in python
- 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

## presentations

- 08 2017 **poster at undergraduate research symposium** NCSU  
GPU implementation of row-wise approximate message passing (AMP)  
speedup of ~28x achieved with CUDA/C++
- 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

## volunteering

- 08 2018 – **Tranzmission Prison Books Project** asheville  
providing books and support for marginalized prison populations
- 03 2018 **participated in Habitat For Humanity build-day** raleigh  
helped build a new home for a community family
- 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
- 06 2017 **cooking & serving food at day-shelter** love wins ministries  
served food to some of Raleigh's homeless and at-risk population
- 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

## extras

- 2016-2018 **facilitator, Wake Up Raleigh**  
mindfulness group with weekly events, community engagement
- 2013-2015 **facilitator, Buddhist Philosophies Club**  
organized events, led 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