# nicocasale

m.s. student, they/them pronouns

## contact

ncasale@ncsu.edu
n-casale.github.io
**github:** n-casale
**linkedin:** n-casale
**wikipedia:** ncasale

(704) 839-1311

720 bilyeu st.
apt. 304
raleigh, NC
27606

## coding

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

## language

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

## interests

GPU programming, machine learning, computer graphics

## education

| | | |
|---|---|---|
| 2017-2018 | **M.S.** candidate in Electrical Engineering | 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

| | | |
|---|---|---|
| 2016-2017 | **independent research** | NCSU Electrical Engineering Department |
| | GPU acceleration of algorithms 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 internship** | Analog Devices, Inc., Greensboro, NC |

worked on communications infrastructure team under John Oates, Systems Engineer. Accompanied project through three hardware revisions.
Moved project forward with:
- improved software
  - program to present board capability to customers
  - automation suite to characterize performance of board
- improved hardware
  - maintenance and modification of surface mount PCB components
  - schematic changes (Cadence Allegro PCB Planner)

## projects

| | | |
|---|---|---|
| since 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. | |
| since 2017 | **computer graphics in C++ 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 | |
| 2018 | **linear discriminant analysis and decision trees in MATLAB** | github |
| | for ECE 759, LDA and Decision Trees were used on the MNIST and Extended YaleB datasets to garner an understanding of machine learning concepts. | |

| | | |
|---|---|---|
| since 2018 | **music review website in React (Javascript)** | github |
| | a project built with friends to host all of our gratuitous opinions on music | |
| 2017 | **orthographic projection in MATLAB** | ECE 592 project (digital image processing) |
| | given a photo of a box and its closest corner in image, program finds faces of box and projects to create 3-D model | |
| 2016 | **internet of things (IoT) 'car'** | ECE 306 project (embedded systems) |
| | built a small remote-controlled car with various I/O devices to a Texas Instruments MSP430 Microcontroller, programmed in C | |

# <span>pre</span>sentations

| | | |
|---|---|---|
| 08 2017 | **poster at undergraduate research symposium** | |
| | GPU implementation of row-wise approximate message passing (AMP) speedup of ~28x achieved with CUDA/C++ | |
| 04 2017 | **poster at senior design day** | |
| | Keg It Out: an IoT beer monitoring service for brewers to optimize distribution. culmination of the Engineering Entrepreneurship Program for senior design | |

# <span>vol</span>unteering

| | | |
|---|---|---|
| 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)** | on campus |
| | offered free help to undergraduates in ECE courses | |
| 2013-2016 | **SOUL Garden volunteer** | on campus |
| | student-run garden which donates food to those in need | |
| 2015 & 2016 | **annual Service Raleigh volunteer** | Raleigh |
| | yearly event to bring many volunteers to the Raleigh area | |

# <span>ext</span>racurriculars

| | | |
|---|---|---|
| since 2016 | **facilitator/host, Wake Up Raleigh** | |
| | mindfulness group with weekly events, community engagement | |
| 2013-2015 | **president, 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 | |
| since 2008 | **poetry & music writing** | |
| | published in the 49th-51st annual editions of NCSU's artistic and literary book | |