

# nicocasale

m.s. electrical engineering, they/them

## contact

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## coding

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

## languages

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

## interests

GPU programming, machine learning, computer graphics

## education

- 2017-2018 **M.S. 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

- 05 2018 – **programmer analyst** Earth Resources Technology (ERT)  
ERT contracts with the National Oceanographic and Atmospheric Administra-  
tion (NOAA) to make its swathes of data available to the public
- 2016-2017 **independent research** NCSU  
GPU acceleration of an algorithm using NVIDIA's CUDA/C++, under guid-  
ance 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. Improved project through three hardware revisions.

## projects

- 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
- 2018 – **music review website in React (Javascript)** github  
a project built with friends to host our gratuitous opinions on music
- 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

- 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
- 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

- 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

## extracurriculars

- 2016-2018     **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
- 2008 –     **poetry & music writing**  
 published in the 49<sup>th</sup>–52<sup>nd</sup> annual editions of NCSU's artistic and literary book