nicocasale

m.s. student, they/them pronouns

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coding

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

languages

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)
graduating may 2018, *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
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 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

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

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

since 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

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 **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

2015 & 2016 **annual Service Raleigh volunteer** raleigh
yearly event to bring many volunteers to the Raleigh area

extracurriculars

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–52nd annual editions of NCSU's artistic and literary book