

nicocasale

m.s. electrical engineering, they/them pronouns

contact

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coding

CUDA/HLSL
C++/C#
MATLAB
python
L^AT_EX
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)
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. 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 using mathematics and image processing concepts to generate art; working with OpenFrameworks (C++), MATLAB, and Google's search API in python	instagram (some code on github)
since 2018	music review website in React (Javascript) a project built with friends to host our gratuitous opinions on music	github
2017	orthographic projection in MATLAB given a photo of a box and its closest corner in image, program finds faces of box and creates a 3-D model	ECE 592 (digital image processing)
2016	internet of things (IoT) 'car' built a small remote-controlled car with various I/O devices to a Texas Instruments MSP430 Microcontroller, programmed in C	ECE 306 (embedded systems)

presentations

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

volunteering

03-04 2018	participated in three Habitat For Humanity build-days helped build a new home for a community family	raleigh
03 2018	served at a pay-what-you-can restaurant served at a community restaurant with a sliding pay scale, starting at \$0	A Place At The Table
06 2017	cooking & serving food at day-shelter served food to some of Raleigh's homeless and at-risk population	love wins ministries
2016	family STEM nights facilitated interactive engineering experiments for K-12 students	local elementary & middle schools
2016	peer tutor for Eta Kappa Nu (HKN, ECE honor society) offered free help to undergraduates in ECE courses	NCSU
2013-2016	SOUL Garden volunteer student-run garden which donates food to those in need	NCSU

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	
since 2008	poetry & music writing published in the 49 th –52 nd annual editions of NCSU's artistic and literary book	