

nicocasale

m.s. student, they/them pronouns

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coding

C++/CUDA
MATLAB
Python
L^AT_EX
C#
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.

2018	music review website in React (Javascript) a project built with friends to host all of 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 projects to create 3-D model	ECE 592 project (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 project (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++
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

volunteering

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	on campus
2013-2016	SOUL Garden volunteer student-run garden which donates food to those in need	on campus
2015 & 2016	annual Service Raleigh volunteer yearly event to bring many volunteers to the Raleigh area	Raleigh

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 49 th -51 st editions of NCSU's literary magazine