nico**casale**

m.s. electrical engineering, they/them

contact

ncasale94@gmail.com
n-casale.github.io
github: n-casale
linkedin: n-casale
wikipedia: ncasale

(704) 839-1311

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.** 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 - metadata**	Earth Resources Technology (ERT)
	ERT contracts with the National Oceanographic and Atmospheric Administration (NOAA) to make its swathes of data available to the public	
2016-2017	**independent researcher**	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 multiprocessor approximate message passing (MP-AMP)	
08-12 2014 06-12 2015	**cooperative education intern**	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	**facilitator, 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 49th–52nd annual editions of NCSU's artistic and literary book	