

nicocasale

m.s. electrical engineering, they/them

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. Electrical Engineering (3.74 GPA)** 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 – **junior metadata programmer** 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 multi-processor 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