# n. casale

m.s. electrical engineering, they/them


## contact

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n-casale.github.io
**github**: n-casale


## coding

Java/Groovy/Maven
Javascript/HTML
CUDA/HLSL
MATLAB
C++/C#
Python
LaTeX
C

## languages

**native**
english
**skilled**
spanish
**basic**
german
french
italian

## education

2017-2018 **M.S.** Electrical Engineering (3.74 GPA) North Carolina State University (NCSU)
*non-thesis*, courses in data science algorithms, stochastic processes, digital image/signal processing, matrix theory, 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 – **associate software engineer** General Dynamics IT and ERT
contractor with the National Oceanic and Atmospheric Administration (NOAA) to help make its swaths of data available to the public. Responsibilities include software tool development for metadata manipulation and management

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.
communications infrastructure proof-of-concept for digital pre-distortion (DPD) in cellular base stations. Improved project through three development stages

## presentations

08 2017 **poster at undergraduate research symposium** NCSU
GPU implementation of row-wise approximate message passing (AMP)

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

## projects

2017 – **computer graphics in Javascript, LaTeX, C++, Python, and MATLAB**
using mathematics and image processing concepts to generate art; work with OpenFrameworks (C++) and Google's search API

2018 **music review website in React (Javascript)** github
a project built with friends to host our gratuitous opinions on music

01-06 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

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 (line detector) and creates a 3-D model (projection)

2016 **internet of things (IoT) 'car'** ECE 306 (embedded systems)
built a small remote-controlled car with various I/O devices upon a Texas Instruments MSP430 Microcontroller, programmed in C

## volunteering

08 2018 – **prison books project** asheville
providing books and support for marginalized prison populations

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

## extras

2016-2018 **facilitator, Wake Up Raleigh**
mindfulness group with weekly events, community engagement and leadership

2013-2015 **facilitator, Meditation Club**
organized weekly events, discussions; community engagement and leadership

2016-2017 **Co-Op ambassador**
informed students about the Co-Op program at NCSU; opportunity to demonstrate leadership and character

2008 – **poetry, prose, & music writing**
published in four annual editions of NCSU's artistic and literary book

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