NATALIE CYGAN

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PROGRAMMING LANGUAGES

Extensive programming experience in **C++**, **C**, **Python**, and **Java**. Project experience with Swift, React Native, and HTML/CSS.

TOOLS

TensorFlow, PyTorch, Jupyter Notebook, LaTeX, Unix, Google Cloud Platform.

SOFT SKILLS

Self-motivated learning, teaching others, teamwork, adaptability, problem solving, and creativity.

LANGUAGES

Working proficiency in French

VOLUNTEER/OUTREACH

Stanford Society of Women Engineers Outreach Intern: Organized outreach events directed at young girls K-12 to increase female representation in STEM.

Denton Girls + Code: Created an organization to introduce local middle school girls to computer science skills through after school workshops in my hometown.

EDUCATION:

Stanford University, Stanford, CA— B.S. Computer Science
SEPTEMBER 2017 - JUNE 2021

Relevant coursework**:**
2017- 2018: CS 106X: Programming Abstractions (Accelerated), CS 107: Computer Organization and Systems, CS 110: Principles of Computer Systems, MATH 20, MATH 21: Calculus, MATH 51: Linear Algebra and Multivariable Calculus, ENGR 40M: An Intro to Making: What is EE.

2018- 2019: CS 131: Computer Vision, CS 231N: Convolutional Neural Networks for Visual Recognition, CS 147: Human-Computer Interaction Design, CS 148: Computer Graphics, CS 108: Object-Oriented Systems Design, CS 103: Mathematical Foundations of Computing and Probability, ME 210: Mechatronics.

2019-2020: CS 221: Artificial Intelligence: Principles and Techniques, CS 236: Deep Generative Models, CS 398: Computational Education, CS 140: Operating Systems and Systems Programming, EE 180: Digital Systems Architecture, CS 379C: Computational Models of the Neocortex.

EXPERIENCE:

Google, Sunnyvale, CA —Engineering Practicum Intern
JUNE 2019 - SEPTEMBER 2019

- Intern on the Visual Semantic Service team, providing computer vision for all Google products.
- I modernized heavily used face feature landmarking software by researching active shape models, and rewriting the pipeline with optimized math libraries (C++, Eigen) and standardized programming style.
- Introduced unit tests, wrote testing tools, and created documentation for further developing the FaceSDK pipeline.

CS 106 Section Leader at Stanford University
APRIL 2018 - PRESENT

- Taught weekly discussion sections for students in CS 106A, CS 106B, and CS 106X in Java, Python, and C++.
- Grade student homework assignments with extensive feedback on code functionality and style, and hold 15-minute code individual code review sessions with them.
- Hold weekly office hour shifts to help students debug their code and understand course material.Help with preflighting new assignments and maintaining internal documentation for other section leaders.
- Lead workshops and evaluations involved in the training of new section leaders.

PROJECTS:

Learning to Groove: Conditional Melody Generation from Authentic Basslines
OCTOBER 2019 - DECEMBER 2019

- Final project for CS 236: Deep Generative Models.
- Generated artificial music tracks with a dual LSTM model: a bassline model that is trained first and provides rich encodings, and a melody model that conditions generation upon those bass encodings. We also present a novel encoding scheme for representing polyphonic music.

Classifying Food Deserts
OCTOBER 2019 - DECEMBER 2019

- Final project for CS 221: Artificial Intelligence Principles and Techniques.
- Aimed at helping policy-makers and produce-providers understand where to best focus their efforts to alleviate food insecurity, we built models (Random forest, SVM, Neural Network) to classify areas as food deserts using socioeconomic features and to identify which features are the best predictors of food deserts.

Facial and Portrait Aware Artistic Style Transfer
APRIL 2019 - JUNE 2019

- Capstone project for CS 231N: Convolutional Neural Networks for Visual Recognition.
- Improved upon canonical artistic style transfer implementations by introducing a subject-background segmentation step and additional training loss term that emphasizes style in the background in order to preserve the integrity of facial characteristics.