

# Alan Chen

69 Brown St., Mail #7861, Providence, RI 02912  
alan\_chen1@brown.edu  $\diamond$  alanchen-1.github.io

## EDUCATION

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### Brown University

2021 - Present

Intended Computer Science + Applied Math Double Major

- **Relevant Coursework:** Data Structures and Algorithms, Software Engineering, Linear Algebra, Discrete Mathematics, Multivariable Calculus, Statistical Inference, Probabilistic Modeling, Pattern Theory, Differential Equations, Abstract Algebra

### Montgomery Blair High School

2017 - 2021

Science, Mathematics, and Computer Science Magnet Program

## RELEVANT TECHNICAL SKILLS

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**Programming/Markup Languages:** Python, C++, Java, R, MATLAB, Functional Programming (Racket, Pyret), Javascript, HTML/CSS,  $\LaTeX$

**Libraries/Frameworks:** Pytorch, Tensorflow, Numpy, sklearn, OpenCV, pandas, Anaconda, npm

**Software/Tools/OSs:** git, \*nix, vim, SQL, CUDA, VSCode, Windows, Linux, macOS

## EXPERIENCE AND PROJECTS

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### Intel - Graphics/Computer Vision Software Intern

May 2022 - Present

### Brown University - CS/Math/Physics Research

February 2022 - Present

Mentored by Dr. Andrey Gromov

Exploring and formulating the notion of criticality (ability to train) in deep learning networks like MLP, ResNets, and transformers, how to initialize networks, and other topics in the theory of deep learning, including testing theoretical results empirically using libraries like Pytorch and JAX.

### waifuGAN - DCGAN for cartoon faces

August 2021 - January 2022

Created a DCGAN-based cartoon face generator in Pytorch. Dataset was custom webscraped and cropped using OpenCV. Worked to improve model through various training techniques, such as dropout, soft labels, and tweaking/tuning the DCGAN architecture (activation functions, hyperparameters, etc.).

### NASA GSFC - AI Research

July 2021 - August 2021

Mentored by Dr. Yaping Zhou and Dr. Chenxi Wang

Used machine learning and AI models (random forest, deep learning) in tensorflow and sklearn (Python) libraries on custom collocated and pruned dataset to predict aerosol optical depth, an important factor in predicting natural disasters like dust storms.

### University of Maryland - CS/Quantum Physics Research

May 2020 - December 2020

Mentored by Dr. Victor Galitski and Shankar Balusubramanian

Researched the coupling of discrete supersymmetry and the localization landscape to predict the behavior of high energy eigenstates. Worked with both coding simulations in Python and proving mathematical theory. Recognized as national top 300 projects in Regeneron's Science Talent Search and selected as an alternate to present at the International Science and Engineering Fair.

## SELECTED DISTINCTIONS AND EXTRACURRICULARS

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Outreach Committee Head, Brown CS Departmental Undergraduate Group

2021 - Present

Hack@Brown Development Team

2021 - Present

Brown University ICPC Team

2021

Regeneron National Science Talent Search Top 300 Semifinalist

2021

Presenter - American Geophysical Union 100th Annual Meeting

2019

American Invitational Mathematics Exam Qualifier

2018, 2019

American Mathematics Competition Distinguished Honor Roll

2018