

SIDDHARTH DIWAN

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Education

Brown University | Sc.B. in Computer Science, A.B. in Astronomy | GPA: 4.0/4.0

Graduating May 2024

◇ **Relevant Coursework:** Software Engineering, Computing Systems, Deep Learning, Honors Linear Algebra, Discrete Structures and Probability, Intermediate Calculus, Statistical Inference

Experience

Brown PLT | Pyret Language Developer | Providence, RI

Nov 2020 – July 2021

◇ Implemented the **Pyret Date-Time Library** by introducing **new datatypes** supporting the representation and manipulation of durations and calendar-times such as **Duration**, **ZoneOffset**, **ZoneId**, **UtcDateTime** and **OffsetDateTime**

◇ **Documenting** the new Date-Time library using **Racket Scribble**

Indian School of Business | DIRI Team | Data Science Intern | Hyderabad, India

Oct 2020 – March 2021

◇ Designed and built an **interactive dashboard** with **Plotly**, **Dash** and **Heroku** to visualize trends in 'Privacy' labelled tweets

◇ Utilized techniques such as **web-scraping**, **multithreading**, **task scheduling** and **Named Entity Recognition** to classify tweets based on sentiment, retweets, favorites, hashtags and organization references

Research

Self-Supervised Segmentation for Hand Disambiguation | Undergraduate Researcher

June 2021 – Present

◇ Analyzing varying **image flow** implementations of the **RAFT** algorithm with Professor Srinath Sridhar in the **Interactive 3D Vision & Learning Lab** at **Brown Visual Computing**

◇ Developing an optimal **Motion Grouping** model that disambiguates left and right hands within **procedural frames** of culinary videos

Light Echo Modeling in Euclid Geometries | First Author, Presenter, Researcher

Dec 2018 – Nov 2020

◇ Modelled light echo emissions from Broad Line Clouds in Euclidean geometries with Professor Dipankar Maitra using **Plotly Distribution Plots** and **Kernel Density Estimation** curves

◇ Hosted an interface with interactive inputs using **Dash** and **Heroku**

◇ **Only high schooler** to present the code and an **academic poster** of the research results at **PhysCon 2019**, Providence, RI

Projects

Schwarzschild Ray Tracing [[sidwan02/schwarzschild-ray-tracing-app](https://github.com/sidwan02/schwarzschild-ray-tracing-app)]

Dec 2020 - Present

◇ Performed Schwarzschild Ray Tracing using the **Python differential equation solver library** and **elliptic integral library**

◇ Hosted an **API** using **Django** that takes in a light source position and initial ray direction, and returns a **dynamic recursive sampling** of ray trajectory points

◇ Developed a **React Native** application (in closed testing on the **Play Store**) that allows users to trace rays in **2D/3D space**

Journal Texter [[sidwan02/journal-texter](https://github.com/sidwan02/journal-texter)]

Spring 2021

◇ Built a **web-app** with **Maven** and **Heroku** that records and organizes user journal entries

◇ Developed a **word count vectorization** algorithm in **Java** to extract terms from entries and a **sentiment analysis** model using **PyTorch** to attach **contextual sentiment** to those terms for **recommending** successive entry topics

Leadership

Software Engineering CSCI 0320 | Undergraduate Teaching Assistant

Fall 2021

◇ Hosting weekly TA hours for **60+ students**, mentoring 9 groups and 9 individual students through weekly check-ins

◇ Developed **Dijkstra**, **A*** and **LPA*** lecture content and **Java** assignments

◇ Built traffic and street intersection servers in **Python** to provide students with **real-time data** for their pathfinding projects

Skills

◇ **Self-learning:** Udemy, Coursera, MIT OCW, edX

◇ **Languages & Technologies:** Python, Java, React Native, JavaScript, Pyret, PyTorch, C, TensorFlow, x86-64, Racket, HTML

◇ **Interests:** Public Speaking, Debate, Rocketry, Badminton, Synthwave, Chiptune