DAVID MENEZES

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EDUCATION

2021 - present	**University of Connecticut,** Storrs, CT **B.S.** in Physics, **Minor** in Astrophysics *(in progress)* **Advisor:** Dr. Jonathan Trump

RESEARCH EXPERIENCE

2023-present	**Research on Accretion Disk Light Curve Lags using Photometric RM** Working with Hugh Sharp, Graduate Student at the University of Connecticut *Undergraduate* Conducting a project focused on analyzing the scales of Sloan Digital Sky Survey (SDSS) quasars measured from photometric continuum reverberation mapping (RM). Continuum photometry sufficiently contaminated by emission lines from the Broad-Line Region (BLR) may map sizes more indicative of the BLR. Photometric BLR mapping of select quasars could be pivotal in the future through Rubin/LSST, allowing less expensive determination of black hole mass.
2022-2023	**Research on Quantum Dynamics on Classical and Quantum Computers** Worked with Dr. Lea F. Santos, Professor at the University of Connecticut *Undergraduate* Worked on the evolutionary dynamics of spin 1/2 chains, specifically focusing on configurations with one and two excitations. The inception of the project involved adept utilization of classical computing resources, leveraging the programming language Python for meticulous model development. Looking ahead, the aim was strategically poised to advance the research by seamlessly transitioning to the cutting-edge capabilities of an IBM quantum computer.
2021-2023	**Research on Broad Emission-line variability of Luminous Quasars** Worked with Logan Fries, Graduate Student at the University of Connecticut *Undergraduate* Focused on the analysis of the variability in SDSS spectroscopic broad emission-line data from luminous quasars. This research primarily focused on the exploration of uncharacteristic variability in quasar emission lines such as Carbon(IV), Magnesium(II), Neon(V), and Iron(X), of an SDSS-V quasar catalogue of quasars within the Redshift (z) bounds from 0 to 0.56. To achieve the, we utilized reverberation mapping of the active galactic nuclei's (AGN) various emission lines originating from the broad-line region (BLR).

AWARDS, FELLOWSHIPS, AND HONORS

2022	**NSF Grant**, awarded to the 2022-2023 undergraduate quantum computing research group advised by Dr. Lea Dos Santos
2022	**Dean's List**, maintained a GPA in the upper 25th percentile of the UCONN CLAS
2021	**BBB Award**, provided by Dr. Stephany Santos & the Vergnano Institute

PRESENTATIONS

2023 | **Undergraduate Quantum Computing Semester-end Showcase**, Storrs, CT
     | "Quantum Dynamics on Classical Computers"

OUTREACH

2023   UCONN VII, Engineering Your Future Presenter
2022-2023   BRIDGE Physics Major Ambassador
2022-2023   UCONN VII, Student Mentor
2022   daVinci Project Guide

TEACHING EXPERIENCE

2024 | **Course Instructor for Physics I**
     | Taught under the BRIDGE program to a group of incoming undergraduate STEM students.

2022-2024 | **VII HOMEROOM Tutor**
          | Academic year-round tutoring program structured to assist STEM majors of all backgrounds at UCONN.

2023 | **BRIDGE Physics Teaching Assistant**
     | 5-week summer program designed to uplift and prepare incoming engineering students from underrepresented backgrounds, as they begin their first semester of undergrad.

SELECT PROGRAMMING AND TECHNICAL SKILLS

- Highly proficient programming in Python, including large scale data manipulation, web based data visualization, and various statistical analysis techniques.

- Knowledgeable with LaTeX, able to create and customize complex documents with efficiency, attention to detail, ensuring the seamless presentation of technical and scientific content.

- Proficient in the examination and analysis of scientific images using the DS9 (SAOImage DS9) software, demonstrating a comprehensive understanding of image inspection techniques within the context of scientific research.

- Well versed with most spreadsheet software & the full Creative Cloud suite primarily in animation, photo & video editing.

- Strongly Experienced in complex electronic, software, and computer hardware & OS troubleshooting.

- Multilingual proficiency in five languages, able to seamlessly write in and verbally communicate.

- Ability to work using Matlab, JavaScript, HTML, C#, C (via Xcode), and Swift.

PUBLICATIONS - CO-AUTHOR

- Sharp, H. W., et al 2023, *The Sloan Digital Sky Survey Reverberation Mapping Project: Investigation of Continuum Lag Dependence on Broad-Line Contamination and Quasar Properties*

- Santos, L. F., et al 2023, *Quantum Dynamics on Classical and Quantum Computers*