**TRUNG V. HA**
vinhtrungha99@gmail.com (personal) ● trungha@my.unt.edu (school) ● 585-208-2903

**Curriculum Vitae**

## RESEARCH INTERESTS

Computer simulation of supermassive black holes.
Stellar evolution and turbulent kinematics within stellar associations.
Near-infrared spectroscopy of weak emission line quasars.
Application of machine learning and computer vision in physics and astrophysics research.

## EDUCATION

| | |
|---|---|
| 2020 – present | **University of North Texas, Denton, Texas**<br>PhD. in Physics (anticipated 2025)<br>M.S. in Physics (anticipated May 2022)<br>GPA: 4.00 / 4.00 |
| 2017 – 2020 | **University of Rochester, Rochester, New York**<br>B.S. in Physics<br>Minor in Mathematics |
| 2015 – 2017 | **Central Arizona College, Coolidge, Arizona**<br>A.S. in Physics |

## RESEARCH EXPERIENCES

| | |
|---|---|
| September 2020 – Present | **Department of Physics, University of North Texas**<br><br>Analyze data from Gaia all sky survey to measure turbulence traced by young stars in various molecular clouds in the Milky Way.<br>Model the evolution of turbulence traced by stellar populations in giant molecular cloud simulations.<br>(Y. Li, supervisor)<br><br>Reduce and analyze near infrared spectra of quasars to confirm the correlation between weak emission line quasars and accretion rates.<br>(O. Shemmer, supervisor) |
| September 2018 – May 2020 | **Center for Computational Relativity and Gravitation, Rochester Institute of Technology**<br><br>Performed dynamical simulations of binary neutron stars using the Einstein Toolkit.<br>Documented user manual for LORENE neutron stars initial data generation code.<br>Generated binary neutron stars initial data.<br>(J. Faber and E. Blackman, supervisor) |
| June 2018 – August 2018 | **Laboratory for Laser Energetics, University of Rochester** |

Wrote MATLAB program to analyze beamspray signals from laser shots through an under-dense plasma.
Performed laser wakefield acceleration simulations in 2-D and compared results with available 3-D data.
Designed a parameter space constraint for a variable-aperture ellipsoidal plasma mirror.
(J. Shaw, supervisor)

## WORK EXPERIENCES

June 2021 – Present **Graduate Research Assistant, University of North Texas**

Continue research on turbulent spectrum of stars, Hα gas, and CO gas in nearby molecular clouds.
Advise graduate students in the Artificial Intelligence program at UNT on an inter-disciplinary project to apply neural networks to identify similar star-forming regions of the Milky Way.

August 2020 – May 2021 **Graduate Teaching Assistant, University of North Texas**

Led lab sections for introductory physics for life science majors.
Reviewed concepts taught in lectures as pertain to the experiments, grade and provide feedback to students through exercise questions and lab reports.

September 2018 – December 2019 **Physics Undergraduate Teaching Assistant, University of Rochester**

Led physics workshop sessions at the introductory level.
Assist course instructors with homework and exam grading, review materials taught in class.
Guide students through prepared workshop modules, hold weekly office hour to provide extra help.

September 2016 – May 2017 **Mathematics tutor, Mesa Community College**
Held one-on-one tutoring sessions for students with disability at various mathematical levels, from basic arithmetic to pre-calculus.

## PUBLICATIONS

***"Handing-Off the Outcome of Binary Neutron Star Mergers for Accurate and Long-Term Post-Merger Simulations"***
Lopez Armengol, F. G.; …; **Ha, Trung**; et al., (Physical Review D, submitted)

***"HARM3D+NUC: A new method for simulating the post-merger phase of binary neutron star mergers with GRMHD, tabulated EOS and neutrino leakage"***
Murguia-Berthier, A.; …; **Ha, Trung**; et al., (2021ApJ...919...95M)

**"*Measuring Turbulence with Young Stars in the Orion Complex*"**
**Ha, Trung**; Yuan, L.; Xu, S.; Kounkel M.; Li, H., (2021ApJ...907L..40H)

## TALKS

| | |
|---|---|
| February 2021 | **AAS Journal Author Series with Frank Timmes, YouTube**<br>Interview on recent publication, title: "Measuring Turbulence with Young Stars in the Orion Complex" with Dr. Yuan Li. |
| July 2020 | **TCAN on Binary Neutron Stars Workshop, Rochester Institute of Technology**<br>Title: "Generating Initial Data for Binary Neutron Stars using LORENE" with Dr. Joshua Faber and Tanmayee Gupte. |
| October 2019 | **Midwest Relativity Meeting, Grand Valley State University**<br>Title: "Generating Physically Realistic Binary Neutron Stars Initial Data" with Grace Fiacco (Rochester Institute of Technology). |

## AWARDS AND HONORS

| | |
|---|---|
| Spring 2019 – Spring 2020 | Take Five Scholar, University of Rochester.<br>Thesis: "Exploring the Advantages and Shortcoming of French Literature in Translation". |
| Spring 2018 – Spring 2020 | Sigma Pi Sigma member. |
| Fall 2017 | Dean's List, University of Rochester. |
| Spring 2016 – Spring 2020 | Phi Theta Kappa member. |
| Spring 2016 | Outstanding Student in Physical Science, Central Arizona College. |
| Fall 2015 – Spring 2017 | Dean's List, Central Arizona College. |

## OTHER ACTIVITIES

Participated in student exchange programs: "Cultural Exchange Program" in Arizona, USA in 2014-2015 and "French In France" in Rennes, France in summer 2019.

Other interests include computer hardware, unconventional cooling of computer processor, assembling desktop computers and laptops, solving various Rubik's puzzles, and traveling.

Fluent in English and Vietnamese. Intermediate level fluency in French.