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Amar Raj Ghimire

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Personal Profile

I am a passionate physics student with a keen interest in studying black holes, gravitational waves, and the early universe. Having obtained my Bachelor's and Master's degrees in Physics from Tribhuvan University, Nepal, I have developed a solid foundation in both theoretical and experimental physics. My research experience encompasses studying null geodesics around Schwarzschild black holes, analyzing the relative abundances of gas-rich galaxies, and investigating gravitational wave signals from binary neutron star mergers. I am also proficient in Python programming and have experience with various data science libraries. Furthermore, I am an active member of several physics organizations and have presented my research at international conferences and attended many workshops and schools related to Physics and Computer programming. Overall, I am a dedicated individual with a passion for unraveling the mysteries of the cosmos. Also, **I believe, teaching high school students will be so much beneficial for me to continue my passion.**

In addition, I have accomplished all the written exams in Political Science and am currently working on my thesis

Education

M.A. Political Science

Kathmandu Private college, Tribhuvan University

Kathmandu, Nepal

2019-2022 (Thesis year running)

M.Sc. in Physics

Patan Multiple Campus, Tribhuvan University, Lalitpur, Nepal
(3.5 CGPA)

2017 - 2019

B.Sc. in Physics

Trichandra College, Tribhuvan University, Ghantaghar, Kathmandu, Nepal
(56%)

2011 - 2015

Research and Projects

i. Study of null geodesics around Schwarzschild Black hole

(Univeristy Project Third sem MSc : Advisor : Assistant Professor Mr. Yogesh Singh
Maharjan, Tribhuvan University)

Feb 2020 - Apr 2020

ii. Study of Relative abundances of Gas Rich Galaxies to constrain the Early Nucleosynthesis Model

(Master Dissertation : Under the supervision of Dr. suraj Poudel, Pontifical Catholic
University, Valparaiso, Chile and Mr. Yogesh Singh Maharjan, Assistant Prof, Tribhuvan
University)

Oct 2020 - Sep 2022

iii. Study of Gravitational Wave Signals from the Binary Neutron Stars Merger using LIGO/VIRGO/KAGRA Open Data

(Project : With a group of Experts Dr. Sudarshan Karki, LIGO Project, Naresh Adhikari (PhD
Scholar), Shusant Sharma (PhD Scholar))

July 2022 - ongoing

iv. Study of $z \sim 5$ absorbing systems with high resolution data

(Project : Under the supervision of Dr. Suraj Poudel, Texas Christian University, Texas, US)

Nov 2022 - ongoing

Involvement

Member Member, Global Hands-On Universe (GHOU) (2020)

Comittee member Patan Physics Council, Lalitpur, Nepal (2019-)

Skills

Python: Scipy, astropy, Scikit-learn, Pandas, NumPy, Matplotlib, Pyinstaller, **OOP**, tkinter, Django

Other: FORTRAN, HTML/CSS, **C**, **C++**

Miscellaneous: Linux, \LaTeX (Overleaf, **Beamer**), Microsoft Office, **Git**.

Completed Courses: Getting Started with Deep Learning, **NVIDIA DLI**, 2023 march 30, Certificate **Link**

Running Courses: **Udemy**- The Data Science Course 2022: Complete Data Science Bootcamp
NVIDIA-DLI-Accelerating End-to-End Data Science Workflows
-Disaster Risk Monitoring Using Satellite Imagery
Datacamp (Nepal) -Machine Learning Fundamentals with Python

Scholarships and Grants

2020 **Full Scholarship on Second Winter School-2019 in Artificial Intelligence**, Nepal Applied Mathematics and Informatics Institute for Research (NAAMI)

2019 **Master Thesis Support Program 2019-2020**, United Grant Commission (UGC), **Nepal Government**

2014 **Graduation Scholarship**, Trichandra college, Ghantaghar Kathmandu, Nepal

Publications and Presentations

2022 **Analysis of the Null Geodesics in Schwarzschild De-Sitter Space-Time**, **Link**

2022 **Study of Relative Abundances of Gas-Rich Galaxies to Constrain the Early Nucleosynthesis Model**, Growing Black Holes: Accretion and mergers, 15-20 May 2022, **Poster Link** and a brief oral presentation

2020 **A refresher book on “Global Governance”**, Global Books Distributors Pvt .Ltd., Bagbazar, Kathmandu

2019 **A refresher book on “Research Methods In Public Administration”**, Global Books Distributors Pvt .Ltd., Bagbazar, Kathmandu

Experiences

As a Science Teacher:

3rd Feb 2016 - 30th Dec 2018 Mount Everest Secondary School, Kageshwari Manahara Municipality, Thali, Kathmandu

Selected Workshops and Schools:

2022 **IAU Symposium 375**, The Multimessenger Chakra of Blazar Jets, December 5-9, 2022, Kathmandu, Nepal

2022 Workshop on deep learning using Supercomputer, 21st Aug 2022, Organized by KUCMC, Kathmandu University, Nepal

2022 Joint ICTP-IAEA Advanced School/Workshop on Computational Nuclear Science and Engineering”, 23 - 27 May 2022, Organized by **ICTP, Italy**.

2022 **Growing Black Holes: Accretion and mergers**, 15-20 May 2022

2022 Young Researchers’ Workshop on Machine Learning for Materials”, 09 - 13 May 2022 Organized by **ICTP, Italy** [click here](#)

2021 Third Winter School-2019 in Artificial Intelligence, 20 Dec 2021 to 30 Dec 2021, Organized by Nepal Applied Mathematics and Informatics Institute for Research (NAAMI). (**As a Teaching Assistant**).

2020 Kathmandu Astrophysics School-Part I, Introduction to Astrophysical Data Analysis and techniques, 9th November 2020 to 1st February 2021.

- 2020** Radio Astronomy Workshop(RAW) on CASA Pipeline for ALMA Data 2020(RAW CASA-ALMA 2020),19th Nov 2020,Radio Cosmology Research Laboratory,University of Malaya ,Malaysia
- 2020** 4 Days Workshop on Mathematics for Machine Learning, 19 October-22 October 2020 organized by EXCESS Nepal
- 2020** Online School on Space and Atmospheric Physics, August 5-7, 2020,Organized by Department of Physics,St. Xavier's College, Kathmandu in collaboration with Universidade do Vale do Paraíba, Brazil.
- 2020** Scientific Data Analysis and Data Workshop 2020,from June 14 to July 05 2020,Organized by **Datanox**.
- 2020** "Virtual Meeting on Compact Stars and QCD 2020",International Center for Theoretical Sciences (ICTS),from 17 Aug to 21 Aug 2020 , India
- 2020** Winter School on Astronomy,16 Feb 2020 to 21 Feb 2020,Birla Science Center **Hyderabad, India**
- 2020** Second Winter School-2019 in Artificial Intelligence,10 Dec 2019 to 20 Dec 2019 ,Organized by Nepal Applied Mathematics and Informatics Institute for Research(**NAAMI**)
- 2019** GHOU's First Asia Regional Conference,7th to 9th March 2019 Organized by: Global Hands ON Universe(GHOU),Mars Academy USA,Prithvi Narayan Campus (Pokhara),Pokhara Research Initiatives(PRI),Orion Space Pvt. Ltd. ,Pokhara Astronomical Society ,Research Center for Applied Science and Technology(RECAST) Nepal
- 2018** The Physics Without Frontiers Winter School 2018,Dec 19 to 21 2018 ,Organized by :**ICTP,US-ATLAS** and Kathmandu University
- 2017** Workshop On Mathematica ,2017 ,Organized by: Physics Research Initiatives(PRI),Pokhara.
- 2017** Nepal-US Workshop on Applied Sciences and Industry Academia Forum 2017 Organized by:Research Center for Applied Science and Technology (RECAST),Nepal

Participations :

- 2020** One day Webinar on "Numerical Simulation using Maple-2020,NSUM-2020",19 th september 2020 ,Binary Semantics Ltd, India
- 2020** Webinar on "Solar Coronal Holes and Their Roles in Space Weather",26 th June 2020,Nepal Physical Society and Nepal Science and Research Society,Kathmandu.
- 2019** First National Continuing Professional Development (CPD) Program On "RADIOTHERAPY ONGOING IN NEPAL" 28 TH th September 2019,Organized by: Medical Physicist And Radiotherapy Technologist Team Of Nepal
- 2019** Global Moon Landing 50 event as part of the IAU 100 celebrations in 2019, Organized by Nepalese Space Research Association (NESRA).
- 2019** Second National Space Meet Of Nepal(NSM 2019) ,Organized by: Space Generation Advisory Council (SGAC)
- 2018** Second National Symposium of Magnetic Resonance Imaging 2018 Organized by: Medical Imaging Technology Student's Society (NAMS)
- 2018** First National Space Meet Nepal 2018 Organized by: Space Generation Advisory Council (SGAC), Nepal

References

- Dr. Lekhnath Mishra
Head of Physics Department, Patan Multiple Campus,Lalitpur,Nepal
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- Dr. Suraj Poudel
Postdoctoral Research Associate,
Dept. of Physics and Astronomy,Texas Christian University,Texas,**US**
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- Mr. Yogesh Singh Maharjan
Assistant Professor,Amrit Science College,Kathmandu
Lecturer, Patan Multiple Campus,Lalitpur,Nepal
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- Dr. Sudarshan Karki
Postdoctoral Scholar, Missouri University of Science and Technology
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