

ABDULLAH N MALIK | Curriculum Vitae

✉ abdullah.malik@tsc.fl.edu • 444 Appleyard Dr, Tallahassee, FL 32304
☎ (+1) 571 299 8671 • 🌐 [Webpage](#) • [LinkedIn](#)

SUMMARY

PhD in Pure Mathematics, with interests spanning applied category theory, data science, graph neural networks, machine learning, graph theory, microeconomics, quantum computing, the mathematical foundations of physics, and mathematical philosophy.

EDUCATION

FLORIDA STATE UNIVERSITY

Ph.D. in Pure Mathematics

Thesis: Simplicial Methods in Graph Machine Learning

8/2018 – 5/2024

Tallahassee, FL

CGPA: 3.63

QUAID-E-AZAM UNIVERSITY

M.Phil. in Pure Mathematics

Thesis: Operator Algebras and The Foundations of Quantum Mechanics

2/2014 – 4/2016

Islamabad, Pakistan

CGPA: 3.80

COMSATS INSTITUTE OF INFORMATION TECHNOLOGY

B.S. in Mathematics

Thesis: Engineering Deutsch-Jozsa Algorithm in Cavity QED via Bragg Regime

2/2008 – 2/2012

Islamabad, Pakistan

CGPA: 3.28

PUBLICATIONS

- › Foster, T. S.; **Malik, A. N.** Wiesfeler and Leman Go Global Locally. In preparation
- › Capucci, M.; Gavranović, B.; **Malik, A.N.**; Rios, F., & Weinberger, J. On a fibrational construction for optics, lenses, and Dialectica categories. *entics*:14638, 4. 2024 <https://doi.org/10.46298/entics.14638>
- › Behzad, M.; Adnan, N.; **Malik, A.N.**; Merchant, S.A. Technology-Embedded Hybrid Learning. Preprints 2018, 2018030229. <https://doi.org/10.20944/preprints201803.0229.v2>
- › Xing, Y. H., Farooq, M. U., **Malik, A. N.** Effects of Gender on the Performance of Microenterprises in Pakistan. *The International Journal of Humanities & Social Studies*, 5(11). 2017
- › **Malik, A.N.**, Kamran, T. Orthomodularity and the incompatibility of relativity and quantum mechanics. *Quantum Stud.: Math. Found.* 4, 171–179 (2017). <https://doi.org/10.1007/s40509-016-0092-8>
- › **Malik, A.N.** Non-isometric, involutive antiautomorphisms. *arXiv*:1603.08498, 2016

EXPERIENCE

ASSISTANT PROFESSOR

Tallahassee State College

Instructor of Record:

8/5/2024 – Present

Tallahassee, FL

- › College Algebra
- › Precalculus Trigonometry
- › Mathematics in Context
- › Mathematical Thinking
- › Precalculus Algebra
- › Calculus for Management

- › Fall 2024, Spring 2025, Fall 2025, Spring 2026
- › Spring 2025, Summer 2025, Fall 2025
- › Summer 2025
- › Fall 2025
- › Spring 2026
- › Spring 2026

Services:

- › Mentorship
- › Outreach
- › Math Jury
- › Committees
- › Training
- › Faculty mentor for scholarship recipients
- › Volunteered for Tallahassee Science Festival 2024
- › For International Tournament for Young Mathematicians 2024
- › Member of Math Advisory Committee
- › Faculty Development

ADJUNCT FACULTY

Florida State University

Instructor of Record:

- › Linear Algebra
- › Calculus III
- › Calculus II

- ›› Spring 2025
- ›› Fall 2024
- ›› Summer 2024

5/6/2024 – 5/7/2025

Tallahassee, FL

GRADUATE TEACHING ASSISTANT

Florida State University

Instructor of Record:

- › Calculus III
- › Calculus II
- › Calculus I

- ›› Fall 2023, Spring 2024
- ›› Summer 2023
- ›› Fall 2022, Summer 2022

8/19/2020 – 5/3/2024

Tallahassee, FL

Content Creator:

- › University-wide course notes for Pre-Calculus

Grader:

- › Introduction to Advanced Mathematics
- › Discrete Mathematics
- › Ordinary Differential Equations

- ›› Spring 2023
- ›› Fall 2022
- ›› Fall 2020

Lab Instructor:

- › Business Calculus

- ›› Spring 2022 & 2021; Summer 2021

Graduate Student Mentor:

- › Student: Ayotuntosomi Loye

- ›› Project: Simplicial Sets are Chu Spaces

IN-CHARGE

Office of Hybrid Learning

COMSATS Institute of Information Technology, Virtual Campus

- › Conceptualized and implemented a proposal for a policy framework and educational model on 13 degree programs
- › Piloted the transition of 2 courses from face-to-face to hybrid for 16,500 students, that shaved off 3% of total expenses
- › Led a team of 15 Content Experts, 5 Instructional Designers, 3 Animation Creators, 2 Video Editors and 4 Web Developers, ensuring successful and smooth generation, processing, editing and deployment of academic content
- › Responsible for organizing and coordinating faculty development programs
- › Identified gaps in student ICT literacy and provided appropriate recommendations for improvement

8/21/2017 – 12/26/2017

Islamabad, Pakistan

TEACHING ASSOCIATE

Department of Mathematics

COMSATS Institute of Information Technology, Virtual Campus

- › Moderated the following math courses:
 - ›› Analytical Number Theory, Measure Theory, Operations Research, Introduction to Hilbert Spaces, Functional Analysis, Business Mathematics, Partial Differential Equations, Mathematical Statistics, Business Mathematics and Statistics, Statistical Inference, Algebra, Real Analysis
- › M.Sc. Math undergraduate projects supervised:
 - ›› Theorem of Maria Pia Soler, Non-exhaustive Properties of Multiplicative Groups of Matrices, Axiom of Choice: Equivalents and Implications, Current trends in Quantum Logic, Summing the Divergent, Language of the Universe: The Mathematics of Thermodynamics, A Comparison of Set Theories, Physics by SU(2), Automorphisms of General Linear Group, An Overview of Intuitionistic Logic, Extensions of Real Numbers, Constructive Calculus

3/9/2013 – 8/22/2017

Islamabad, Pakistan

SUBEDITOR (INTERN)

Pakistan Council for Science and Technology

- › Subeditor for PCST's journal Science, Technology and Development
- › Verification of data in Directory of Productive Scientists of Pakistan 2012
- › Organised opening ceremony for Science and Innovation Policy, Pakistan, 2012

10/15/2012 – 11/23/2012

Islamabad, Pakistan

SUBEDITOR

UTrade (Pvt.) Ltd.

- › Led a team of 16 journalists, providing topic guidance and content development for company's signature monthly trade magazine UTrade
- › Wrote editorials and summaries for chief editor for 15 editions
- › Finalized printing and distribution of magazine to readers all over Pakistan
- › Critically analyzed data provided by journalists and improved data presentation

3/19/2011 – 9/30/2012

Islamabad, Pakistan

TEACHING ASSISTANT

Department of Computer Science
COMSATS Institute of Information Technology

› Conducted lab coding sessions for Introduction to Programming using C++ for 30 students.
Coding sessions were held 4 times a week

12/2009 – 5/2010

Islamabad, Pakistan

SKILLS

PROGRAMMING LANGUAGES LIBRARIES ED-TECH SOFTWARE LANGUAGES

Experienced: Python, LaTeX

pytorch | sklearn | dgl | sqlite3 | Pandas | networkx | pix2pix | numpy | multiprocessing

LMS: Canvas | Blackboard

CorelDRAW | MatLab | Maple

Native: Urdu | Potohari | Punjabi

Familiar: C++ | SQL

Grading Tools: Gradescope | Crowdmark

Fluent: English

CERTIFICATIONS

ALTERYX FOR FINANCIAL SERVICES

LinkedIn Learning

› Skills covered: Alteryx, Financial Analysis

7/13/2024

[WWW.LINKEDIN.COM](https://www.linkedin.com/certificates/view/alteryx-for-financial-services)

Certificate

MLOPS ESSENTIALS: MODEL DEVELOPMENT AND INTEGRATION

LinkedIn Learning

› Skills covered: Machine Learning, MLOps, AI

7/8/2024

[WWW.LINKEDIN.COM](https://www.linkedin.com/certificates/view/mlops-essentials-model-development-and-integration)

Certificate

HANDS-ON DATA SCIENCE USING SQL, TABLEAU, PYTHON AND SPARK

LinkedIn Learning

› Use cases of above mentioned tools with examples

6/30/2024

[WWW.LINKEDIN.COM](https://www.linkedin.com/certificates/view/hands-on-data-science-using-sql-tableau-python-and-spark)

Certificate

AI IN FINANCIAL SERVICES

Upstart Network

› Understanding the use, limitations, benefits, and ethical considerations of AI in Finance

6/26/2024

[WWW.UPSTART.COM](https://www.upstart.com/certificates/view/ai-in-financial-services)

Certificate

DATASCIENCE BOOTCAMP

Erdős Institute

› **Project:** Crime prediction in Tallahassee, FL using maps generated by pix2pix.

› **Project:** Predict initial configuration of Conway's Game of Life

5/1/2024 and 5/1/2023

[WWW.ERDOSINSTITUTE.ORG/](https://www.erdosinstitute.org/certificates/view/datascience-bootcamp)

Certificate

Certificate

MASTER TRAINER

Higher Education Commission

› Faculty development training

5/1/2023

[WWW.HEC.GOV.PK](https://www.hec.gov.pk/certificates/view/master-trainer)

Certificate

HONORS & AWARDS

DWIGHT B. GOODNER FELLOWSHIP

Florida State University

Awarded an additional stipend for Fall 2022 in recognition of exceptional performance as a Teaching Assistant.

[Certificate](#)

Spring 2023

OUTSTANDING INSTRUCTOR AWARD

Florida State University

Honored as one of the top instructors in the Math Department. [Certificate](#)

Fall 2022

AMS TRAVEL GRANT

AMS

Awarded AMS travel grant to meet MRC mentor Valeria de Paiva to continue working on project developed at the MRC 2022.

Fall 2022

ACT MRC 2022

AMS

Attended Mathematics Research Committee for Applied Category Theory. Worked under Valeria de Paiva's group on Dialectica Categories.

Summer 2022

ADELAIDE WILSON FELLOWSHIP

Florida State University

Received a one-time monetary disbursement as an promising newly admitted graduate student.

Fall 2018

| | |
|---|-------------------------------------|
| FULBRIGHT FELLOWSHIP Florida State University Awarded a fully funded, five-year merit fellowship for my PhD, including a stipend, book allowance, and travel allowance. Certificate | 2017 Cohort |
| MERIT SCHOLARSHIP Quaid-e-Azam University Tuition waiver for M.Phil. | Spring 2014 |
| PRIME MINISTER'S LAPTOP Islamabad, Pakistan Awarded a laptop from Pakistan's Prime Minister for M.Phil. degree as an honors graduate student. Certificate | Fall 2014 |
| BEST TEACHER AWARD CIIT, Virtual Campus Top-rated teacher in all of Math Department. Received honorarium for performance. Certificate | Fall 2014, Spring 2014, Spring 2016 |
| PAKISTAN ATOMIC ENERGY COMMISSION TALENT SCHOLARSHIP Islamabad, Pakistan Received a merit scholarship that fully covered all fees for my bachelor's degree, along with a stipend and book allowance. | 2008 Cohort |

TALKS

Abstracts, slides and/or notes for the talks are available on my [webpage](#).

| | |
|--|-------------------------------|
| WEISFEILER AND LEHMAN CONSIDER SAMPLING Blessings of Dimensionality Seminar Talk | 8/25/2024 Zoom |
| COLORING GRAPHS AND BEYOND Haverford College Colloquium Talk | 4/15/2024 Pennsylvania, PA |
| FINDING CLIQUES WITHOUT FINDING CLIQUES FSU Math Honors Day Flash Talk | 4/12/2024 Tallahassee, FL |
| WEISFEILER AND LEHMAN USE SIMPLICIAL SETS: PSUEDOTOP VERTEX NEURAL NETWORKS 49th ANYSRGMC Graduate Student Conference | 3/22/2024 Syracuse, NY |
| FINDING HIGHER STRUCTURES IN GRAPHS Florida State University Poster Presentation at Math Honors Day | 4/14/2023 Tallahassee, FL |
| AN INTRODUCTION TO BELL'S THEOREM LOV103, Florida State University Graduate Student Seminar Talk | 11/04/2022 Tallahassee, FL |
| INFINITE SIMPLICES: AN EXCURSION INTO SIMPLICIAL SETS Florida State University Public talk at Research Sharing Luncheon at Honors, Scholars and Fellows Society | 8/19/2022 Tallahassee, FL |
| A COMBINATORIAL APPROACH TO SIMPLICIAL SETS LOV103 Florida State University Topology Seminar Talk | 8/11/2022 Tallahassee, FL |
| AXIOMATIZATION OF DIFFERENTIAL COHOMOLOGY Florida State University Algebra Seminar Talk | 8/21/2021 Zoom |
| THE VARIATIONAL BICOMPLEX AND TAKENS' THEOREM | 4/22/2020 |

HILBERT'S SIXTH PROBLEM AND TOPOS THEORY

LOV201, Florida State University
Graduate Student Seminar Talk

3/12/2019
Tallahassee, FL

COEXISTENCE OF SEVERAL NON-HERMITIAN OBSERVABLES IN PT-SYMMETRIC QM

Delaware State University
Presentation for a class project

4/23/2018
Dover, DE

ORTHOMODULARITY AND INCOMPATIBILITY OF RELATIVITY AND QUANTUM MECHANICS

International Islamic University
3rd National Conference on Mathematical Physics

3/27/2017
Islamabad, Pakistan

MATHEMATICS AND THE FORMALISM OF QUANTUM MECHANICS

Quaid-e-Azam University
Pure Math Seminar Talk

12/03/2015
Islamabad, Pakistan

MATHEMATICS AND THE FORMALISM OF QUANTUM MECHANICS

COMSATS Institute of Information Technology, Virtual Campus
Math Seminar Talk

8/12/2015
Islamabad, Pakistan

ALEXANDER GROTHENDIECK: THE MAN

COMSATS Institute of Information Technology, Virtual Campus
General Seminar Talk

3/12/2015
Islamabad, Pakistan

1, 2, ...

COMSATS Institute of Information Technology, Virtual Campus
Math Seminar Talk

8/24/2014
Islamabad, Pakistan

FIXED POINT THEOREMS IN TOPOLOGY: APPLICATIONS

COMSATS Institute of Information Technology, Virtual Campus
Math Seminar Talk

8/17/2014
Islamabad, Pakistan

THE COUNTER-INTUITIVE APPLICATIONS OF HARMONIC SERIES

COMSATS Institute of Information Technology, Virtual Campus
Math Seminar Talk

1/1/2014
Islamabad, Pakistan

WHY INTUITIONISTIC LOGIC IS DE-CONSTRUCTIVE

COMSATS Institute of Information Technology, Virtual Campus
Math Seminar Talk

11/22/2013
Islamabad, Pakistan

ENGINEERING DEUTSCH-JOZSA ALGORITHM WITH FLYING ATOMS

International Conference and Workshop on Nanoscience and Technology 2012
Conference Talk

8/4/2012
Islamabad, Pakistan

LIMITS AND RANDOMNESS OF REASON

COMSATS Institute of Information Technology
Undergraduate Seminar Talk

8/17/2011
Islamabad, Pakistan

SERVICE AND OUTREACH

JURY

International Tournament for Young Mathematicians
Volunteered for tournament's jury duty

December 2024
WWW.ITYM.ORG

READING GROUP

Florida State University
Initiated and organized a weekly a reading group on Applied Category Theory by arranging speakers and talk titles

Spring 2023 – Spring 2024
Tallahassee, FL

ADVISOR

Fall 2022

Student Advisory Board

Tallahassee, FL

Volunteered on a student advisory board for the Honors, Scholars and Fellows Society at Florida State University.

JUDGE**February 1, 2019****Capital Regional Science and Engineering Fair**

Tallahassee, FL

Volunteered as a judge for a statewide schools' Science Fair.

VOLUNTEER**September 13, 2019****Research Sharing Luncheon**

Tallahassee, FL

Volunteered for logistics support for Research Sharing Luncheon, organized by Honors, Scholars and Fellows Society at FSU.

VOLUNTEER**November 30, 2018****Pakistan Day**

Tallahassee, FL

Volunteered as a waiter, serving Pakistani cuisine on Coffee Hour, part of a weekly event that celebrates one country's cuisine per week at Center for Global Education, FSU.

VOLUNTEER**February 2, 2019 & February 1, 2020****Math Fun Day**

Tallahassee, FL

Volunteered for a public outreach and education event by the Math Department.

GARDENING**April 14, 2018****The Spring Gardens**

Philadelphia, PA

Potted plants in a community vegetable garden as part of Fulbright Enrichment Seminar series.