
CURRICULUM VITAE/RESUME

VINURI KISALKA WICKRAMARATHNA GUNASEKARA

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PROFILE

Dedicated researcher with a strong commitment to cutting-edge research in Materials Science, Inorganic Chemistry, Nanoscience, Electrochemistry, and Advanced Spectroscopic Techniques.

EDUCATION

University of Michigan, Ann Arbor, USA **2025- Present**
Graduate Student (Fall 2025)
Department of Chemistry GPA: **3.82/4.00**

University of Colombo, Sri Lanka **2024**
B.Sc. (Honours) in Chemistry
FIRST CLASS HONOURS
GPA: **3.93/4.00** Credits: 122

PUBLICATIONS

Poster:

Gunasekara, V. K. W.; Tillekaratne, A. CuO/Chitosan Core/Shell Nanoparticles as a Novel Drug Delivery System for Controlled Release of Aspirin. *5th Commonwealth Chemistry Posters*, September 11–12, 2024, virtual event. Poster 123.

<https://epostersonline.com/cwcp2024/poster/p123?view=true>

AWARDS AND HONOURS

Recipient of Dean's List - Academic Years 2019/2020, 2020/2021, 2022/2023
Sylvia Innocence de Silva Scholarship 2023-2024
Eligible for Prof. E. Dilip de Silva Scholarship 2022

RESEARCH EXPERIENCE

University of Michigan **Jan 2026 – Present**
Research Advisor: Prof. Stephen Maldonado

Replacing rare-earth magnets with FeNi intermetallic synthesized by Pulse Voltammetry

- Defect – free L1₀ FeNi exhibits excellent magnetocrystalline anisotropy and has the potential to replace rare-earth magnets in the future. Defect-free L1₀ is synthesized by pulse voltammetry

and other electrodeposition techniques. The synthesized material is characterized by Cyclic Voltammetry, Chronoamperometry, Scanning Electron Microscopy (SEM), Energy Dispersive X-Ray Spectroscopy (EDS), and X-Ray Diffraction (XRD).

Fall Rotation Research Project at the University of Michigan
Endotaxial growth of VSe₂ via thermal annealing

Sep 2025- Dec 2025

- This project focused on the production of novel Endotaxial VSe₂ via thermally converting mechanically exfoliated 1T VSe₂ thin crystals to 2H VSe₂. In this Endotaxial structure, 1T VSe₂, which exhibits unique charge density wave properties, is surrounded by the protective polytype, 2H VSe₂, to obtain undisturbed 2D quantum states. VSe₂ was characterized by Raman spectroscopy, atomic force microscopy (AFM), and scanning electron microscopy (SEM).
- Research Supervisor: Prof. Ageeth Bol

Undergraduate Research Project at the University of Colombo **June 2023 – March 2024**
Development of drug delivery agents using surface modification of CuO- and ZnO- based nanoparticles

- My focus was on designing CuO and ZnO based core/shell nanoparticles as novel drug delivery agents for the controlled release of the anti-inflammatory drug Aspirin. In this study, CuO, CuO/Chitosan, CuO/PEG, CuO/ZnO, ZnO, and ZnO/CuO nanoparticles were synthesized. The structure and morphology of the synthesized nanomaterials were analyzed using techniques such as FTIR, XRD, and SEM. The drug loading and release performances were assessed by UV-Vis spectroscopy. Among the above synthesized nanomaterials, biocompatible CuO/Chitosan core/shell nanoparticles were identified as a successful controlled release system for the delivery of Aspirin.
- Research supervisor: Prof. Aashani Tillekaratne

Continuation of the undergraduate research project - University of Colombo
March 2024 – July 2025

- pH optimization of CuO/Chitosan core/shell nanoparticles as a novel drug delivery system for controlled release of Aspirin.
- CuO/PEG core/shell nanoparticles as a novel system for the delivery of Aspirin.
- Research supervisor: Prof. Aashani Tillekaratne

Volunteer research – University of Colombo
Single Chromophore Raman Spectroscopy

July 2022 - September 2022

- Conducted a comprehensive literature review on analyzing individual chromophores using Surface Enhanced Raman Spectroscopy (SERS). Successfully completed laser safety and Raman alignment training.
- Research supervisor: Dr. Neranga Abeyasinghe

PRESENTATIONS

- CuO/Chitosan core/shell nanoparticles as a novel drug delivery system for controlled release of Aspirin – Presented at the 5th Commonwealth Chemistry Posters on 11th of September 2024. <https://epostersonline.com/cwcp2024/poster/p123>

- Food safety and security risks associated with micro and nano plastic pollution – As a partial fulfillment of the requirements for the B.Sc. (Honours) Degree in Chemistry.

COURSE-RELATED INTERVIEWS

- Prof. Jonathan Sweedler from the University of Illinois at Urbana-Champaign - Under sci-impact interview series, as a partial fulfillment of the requirements for the B.Sc. (Honours) Degree in Chemistry, 2024:
https://www.youtube.com/playlist?list=PLZx2MTh_cUL8KL3Chi1jPE5rbJ0B_DIlz

WORK EXPERIENCE

Graduate Student Instructor, University of Michigan, Ann Arbor (Aug 2025- Present)

- Oversee the Organic Chemistry laboratories for two sections per semester
- Provided feedback to students on their lab reports
- Proctoring and grading of Organic Chemistry exams

Assistant Lecturer, Department of Chemistry, University of Colombo (July 2024 – June 2025) 40 hours per week

- Managed the first-year laboratory as the Assistant Lecturer in charge, leading a team of eight teaching assistants.
- Assisted in conducting laboratory practical sessions for 270 first-year undergraduate students in inorganic, analytical, and organic chemistry.
- Conducted tutorial sessions on Organic Chemistry, Thermodynamics, General Chemistry, Chemical kinetics, and Calculations in Chemistry.
- Served as an invigilator for both theoretical and practical examinations.
- Mentored the undergraduate quiz team of the University of Colombo, leading them to win the championship at the Inter-University Quiz Competition – 2024, organized by the Sri Lanka Association for the Advancement of Science (SLAAS).

TECHNICAL SKILLS

- Instruments
 - ❖ Scanning Electron Microscopy (SEM) | Atomic Force Microscopy (AFM) | X-Ray Diffractometer (XRD) | Fourier Transform Infrared Spectrometer (FTIR) | UV/ Visible spectrophotometer | Nuclear Magnetic Resonance Spectrometer (NMR) | Raman Spectroscopy
- Laboratory skills
 - ❖ Proficient in the synthesis, characterization, qualitative and quantitative analysis of organic and inorganic compounds
- Software tools
 - ❖ Origin Pro | ChemDraw | MS Office | Minitab | Nanoscope

VOLUNTEER EXPERIENCE

- Logan Elementary School 2026

Participated in a science outreach program for elementary students, conducting interactive experiments to promote interest in STEM, and judged students' science fair projects

- SAHAS 23 2023
A community service project organized by the Chemical Society of the University of Colombo, promoting science education among high school students.
- Leadership Development Seminar - LDS 8.0 2021
Aimed at developing leadership qualities among undergraduates of the University of Colombo.

EXTRACURRICULAR ACTIVITIES

- AIESEC in Colombo Central, Sri Lanka -
Member of International Relations Team (2020-2021)
Vice President Finance for Project Forte (2020) and Project Impactful Traveler (2021)
Vice President Delegates for Leadership Development Seminar - LDS 8.0 (2021)
- Chemical Society of the University of Colombo – Member (2022- present)
- LEO Club, University of Colombo – Editor, Content Writer (2021-2022)
- BEEZ, University of Colombo – Member (2020-2021)

REFEREES

Prof. Aashani Tillekaratne

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Prof. Hasini Rangika Perera

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Dr. Neranga Ishan Abeyasinghe

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