Krishna Acharya

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Education:

Expected Graduation: May 2020

Bachelor of Science in **Mechanical Engineering**
St. Ambrose University, Davenport, IA (GPA: **3.73** out of **4.00**)

Awards and Achievements:

- Dec. 2019 — **Undergraduate Student Research Travel Grant,** St. Ambrose University
- 2019 & 2018 — **Research Travel Grant,** Student Government Association (SGA), St. Ambrose University to attend 235th and 233rd AAS Conference in Hawaii and Seattle, respectively
- 2019 & 2018 — **4th & 6th Position**, 24th & 25th Annual Iowa Collegiate **Mathematics Competition**, respectively
- 2017 — **ASHRAE's Mississippi Valley Chapter Engineering Student Scholarship Award**
- 2016–2020 — Academics and Arts Scholarship, St. Ambrose University
- 2016, 2017, 2018 & 2019 — **Dean's List: 5 terms**

Research Experience:

- Aug. 2019–Present — **Analysis of Unsteady Flow of Water Through Sediments and Observation of Microplastics in Sediments**
  Advisor: Dr. Susa H. Stonedahl - Engineering and Physics Department - St. Ambrose University
- Dec. 2018–Present — **Determining the Relation of Special Functions to the Representation Theory**
  Advisor**:** Dr. Timothy L. Gillespie - Mathematics and Statistics Department - St. Ambrose University
- July 2018–Present — **Calculating Distances to the Gamma-Ray Bursts and Supernovae Using Expanding Photosphere Method**
  Advisor: Dr. Robert C. Mitchell - Engineering and Physics Department - St. Ambrose University
  - Detailed study of **'UBVRI' and 'ugriz'** photometric systems
  - Used **MATLAB** Programming language to plot and analyze **spectra** of Supernovae and Gamma-Ray Bursts **(GRBs)**
  - Identify **Doppler shifts** in absorption lines of spectra and calculate **temperature** from photometric data
  - Calculate the distance to supernovae, GRBs and their host galaxy
- Jan. 2017–May 2017 — **Comparing Active Ingredients in Over-the-Counter and Alternative Migraine Medications**
  Advisor: Andrew W. Axup, Kelly M. Giddens, and Joshua J. Stratton - Chemistry Department - St. Ambrose University

Internship Experience:

- July 2019 –Present

Cost Improvisation in Laser Etching, Tubing and Labelling Process of HSS Cutters and Carbide Cutters Through Efficient Workflow and **Semi-Automation**
Advisor: Kristopher Stoker - Jancy Engineering
Skills learned:

1. **VISIO:** Flow chart, floor plans etc
2. **CREO, SolidWorks:** 3D design
3. **LabView**
4. **Lab Testing of Cutters**
5. **Communicate with other cutter companies and arrange educational tour and meetings**

- May 2018–June 2018

Research, Design and Implementation of Efficient Taping System to Create Bundle of Pallets of Different Dimensions
Mentor: Randall Peeters - The Arc Industries of Quad-Cities Area, USA

Teaching Experience:

- Dec. 2017–Present

Teaching Assistant, Mathematics Department, St. Ambrose University
Fall 2019

1. Make **answer key for exams and quizzes**: **Differential Equation (math 320), Statistics (math 300), and Pre-Calculus (math 170)**
2. **Grade quizzes** and **exams** for above-mentioned 3 classes
3. Answer student questions during office hours

Spring 2019

1. Make **answer key for quizzes of Calculus II and Linear algebra**
2. Formulate work plans and strategies for Math work-study
3. **Organize documents using LATEX**

- Aug.–Dec. 2017

Chemistry Tutor, Student Success Center, St. Ambrose University

- Taught chemistry students in tutoring center by appointment
- Helped students prepare for mid-term and final exams

- Mar.–July 2016

Physics and Math tutor, Tinkune, Kathmandu, Nepal

- Taught Mechanics and Electricity and Magnetism for 12th grade physics
- Taught Calculus (limits, continuity, derivative and integration), coordinate geometry and 12th grade math
- Helped in preparation for final board exam

Lab Experience:

- Mar. 2017–Dec. 2018

Lab Prep Student: Chemistry Lab, St. Ambrose University

- **Interacted with the professor of General Chemistry and set up lab**
- Performed the **chemical experiments and checked apparatus** before making lab ready for class
- **Created an inventory** of all chemicals of chemistry and biology lab

- Jan.–May 2017

Lab Safety class (Chem 110)

- Completed the semester long lab safety class
- **Learned safety process** and working environment in laboratory

Publications:

- Mitchell, R. C., Didier, Ganesh, B., and Acharya, K. "Locating Type II Supernovae Using Expanding Photosphere Method." *The Astronomical Journal.* (Submitted for initial review)

- Poster: Mitchell, R. C., Acharya, K, Khadka, R., and Silwal, B. " Comparing Spectroscopic Distances to Different Supernovae Types Using Expanding Photosphere Method", 233rd AAS Conference January 2019. https://ui.adsabs.harvard.edu/abs/2019AAS...23335604M/abstract

Oral Presentations:

- Mar. 2020 (upcoming) — **Undergraduate Scholar Conference, St. Ambrose University**
  Expanding Photosphere Method (EPM): Distances to Supernovae and Gamma-Ray Bursts

- Oct. 2019 — **American Chemical Society (ACS), IL - IA** St. Ambrose University
  Expanding Photosphere Method (EPM): Distances to Supernovae and Gamma-Ray Bursts

- Oct. 2019 — **Jancy Engineering, USA**
  Improvisation in Laser Etching, Tubing and Labelling Process and Cost Reduction of High Speed Steel (HSS) Cutters and Carbide Cutters

- Mar. 2019 — **Sigma Xi John Deere Chapter Meeting**: Research presentation
  Comparing Spectroscopic Distances to Different Supernovae Types Using Expanding Photosphere Method

- Aug. 2018 — **Undergraduate Summer Research Institute Symposium**
  Comparing Spectroscopic Distances to Different Supernovae Types Using Expanding Photosphere Method

Poster Presentations:

- Jan. 2020 — **American Astronomical Society (AAS) 235th Meeting, Hawaii**
  Expanding Photosphere Method (EPM): Distances to Supernovae and Gamma-Ray Bursts

- Nov. 2019 — **WoPhyS 2019 - 11th Annual Conference**, University of Nebraska–Lincoln,
  Expanding Photosphere Method (EPM): Distances to Supernovae and Gamma-Ray Bursts

- Jan. 2019 — **American Astronomical Society (AAS) 233rd Meeting**, Seattle, WA
  Comparing Spectroscopic Distances to Different Supernovae Types Using Expanding Photosphere Method

- Apr. 2018 — **Spring Undergraduate Research Conference**, St. Ambrose University
  Comparing Active Ingredients in Over-the-Counter and Alternative Migraine Medications, Chemistry Department, St. Ambrose University

- Oct. 2017 — **American Chemical Society**, IL-IA Undergraduate Research Conference
  Comparing Active Ingredients in Over-the-Counter and Alternative Migraine Medications, Chemistry Department, St. Ambrose University

Professional Membership:

- Oct. 2018–Present **Undergraduate Member -** American Astronomical Society **(AAS)**
- Nov. 2018–Present **Student Member- Sigma XI**
- 2017–2019 **Student Member**- American Society of Mechanical Engineering **(ASME)**
- 2018 **Member - BAJA,** Society of Automotive Engineers **(SAE)**
- 2017–2018 **Student Member -** American Society of Heating, Refrigerating and Air-Conditioning Engineers (**ASHRAE**)
- 2017 Attendee - Society of Women's Engineering (SWE), University of Michigan, MI
- 2017 Attendee - Destination Leadership Conference, St. Ambrose University, IA

Volunteering & Activities:

- Mar. 2019 Volunteer for Hurricane Florence Victims, Wilmington, NC
  - Cleaned the flooded homes of Wilmington community
  - Assisted in construction and flooring of church
  - Provided packaging of items and cleaning for Habitat for Humanity ReStore
- 2019 Provided inventory of music at KALA radio station, St. Ambrose University
- 2017, 2018 "Introducing Girls to Engineering", St Ambrose University
- 2017 Astronomy educator: " A Night Under the Sky" in Adam Elementary School
- 2017 Demonstrator: Demonstrated chemical reactions in Bettendorf Family Museum during National Chemistry Day