

# Gokul Hariharan,

Ames, IA. | [gokulhariharan1991@gmail.com](mailto:gokulhariharan1991@gmail.com) | [linkedin.com/in/gokulhariharan/](https://www.linkedin.com/in/gokulhariharan/)

## Summary

I would like to experience being a Machine Learning Developer at the forefront of engineering and technology. I have been involved in various collaborative software projects in the fields of runtime verification, formal methods, computational fluid dynamics, ANN, and linear algebra. I am dexterous in various programming languages, including Python, C++, and Javascript to name a few.

## Experience



### Research Assistant

Iowa State University

Jan 2021 - Present (10 months +)

~ Runtime verification for safety critical systems.



### Postdoctoral Researcher

University of Southern California

Apr 2020 – Dec 2020 (9 months)

~ Advanced Control theory and machine learning to control flow transition in channel flows



### Research Assistant

University of Minnesota

Jan 2016 - Apr 2020 (4 years 4 months)

~ Carried out direct numerical simulations by creating codes in C++

~ Used Matlab, Mathematica, Python, for analytical, numerical and statistical analysis of results



### Teaching Assistant

University of Minnesota

Jan 2019 - May 2019 (5 months), Sep 2018 - Dec 2018 (4 months)

~Held discussions and proctored exams for two graduate-level courses, Linear Algebra and Fluid Mechanics.



### Research Assistant

Indian Institute of Technology, Delhi

Jan 2014 - Jun 2015 (1 year 6 months)

~ Simulated the influence of ash on coal particles during fluidization using Discrete Element Modeling (DEM).

~ Tracked coal and ash movements using Molecular-Dynamics-like Simulations (MDS) using C++

~ Leveraged Computational Fluid Dynamics (CFD) in C

~ Won the best poster award in Open House – 2015, IIT Delhi



### Research Intern

BITS Pilani, Hyderabad Campus

May 2011 - Jun 2011 (2 months)

~ Optimal solution between two conflicting objectives in job scheduling using ANN

~ Used ANN to predict flow stress in the dynamic strain aging regime of austenitic stainless steel 316

## Education



### Iowa State University

Doctor of Philosophy (Ph.D.), Computer Science | GPA: 4.0

2021 - 2023



### University of Minnesota

Doctor of Philosophy (Ph.D.), Chemical Engineering | GPA: 3.5.

2015 - 2020

Specialization in Fluid Mechanics. The dissertation consists of four projects:

-- Analyzed effects of localized point forces disturbances in viscoelastic channel flow (Matlab)

-- Spectral methods for (input-output) nonmodal analysis of Newtonian and viscoelastic channel flows (C++, Matlab, and Mathematica)

- Stress amplification in inertialess viscoelastic channel flows
- Direct numerical simulations (DNS) using new and advanced spectral methods (C++, Matlab, Python)



### **Indian Institute of Technology, Delhi**

Master of Technology (M.Tech.), Chemical Engineering | GPA: 3.8

2013 - 2015



### **National Institute of Technology Warangal**

Bachelor of Technology (B.Tech.), Chemical Engineering | GPA: 3.8

2009 - 2013

## **Honors & Awards**

**F Wendell Miller Scholarship** – Department of Computer Science, Iowa State University, Jan 2021

**CEMS Outstanding TA Award** - CEMS, University of Minnesota, Jun 2019

**Sebastian C. Reyes Fellowship** - CEMS, University of Minnesota Jan 2016

**Stephan J. Salter Fellowship** - CEMS, University of Minnesota Jan 2016

**Certificate of Excellence** - Chemical Engineering Society, IIT Delhi, 2015 Department rank 1 (of 25)

**Best Research Poster Award, Open House 2015** - Indian Institute of Technology Delhi 2015

**Roll of Honor Gold Medal** - National Institute of Technology Warangal, 2013, Department rank 1 (of 100)

## **Expertise**

C++ (11) • Python • Javascript • Mathematica • Matlab • Git • OpenMP • MPI • ANN • Machine Learning  
 • Research • Formal methods • Runtime verification • Data structures and Algorithms • Finite Element Method •  
 Computational Fluid Dynamics (CFD) • Decision-Making • Creative Problem Solving • Attention to Detail •  
 Scientific Writing • Linear Systems Theory • Nonlinear Analysis • Applied Mathematics • Modeling and Simulation  
 • Parallel programming • Thermal Engineering • Teaching

## **Papers and Presentations**

Please visit <https://gokulhari.github.io/webpage/Papers.html>