

# Sharan Gopal

GitHub | [sharan20051998@gmail.com](mailto:sharan20051998@gmail.com)  
[sharan-dce.github.io](https://sharan-dce.github.io)

## SKILLS

### LANGUAGES

- Python • C++ • BallerinaLang
- Bash

### FRAMEWORKS AND TOOLS

- TensorFlow • NumPy
- Amazon Kinesis • Apache Kafka
- Django • Docker • Git
- Enterprise Service Buses

### ADVANCED ALGORITHMS

- Advanced Data Structures and Algorithms such as Fast Fourier transforms, tree and graph algorithms, advanced query algorithms (from Programming Contests)

[Link to Implementations](#)

## ACHIEVEMENTS

**K.C. MAHINDRA SCHOLAR**  
2020

**ACM ICPC KANPUR REGIONALS, 2018** | [LINK](#)  
Team Rank: 10/159

**GOOGLE KICKSTART ROUND D, 2019** | [LINK](#)  
Rank: 92/1866 contestants

## TEACHING

### DCE CODERS

- Taught advanced Algorithms and Data structures for ACM ICPC
- Duration: 2 years
- Regular class strength: 60-70

## EDUCATION

### DELHI TECHNOLOGICAL UNIVERSITY (FORMERLY DCE)

**B.TECH, COMPUTER ENGINEERING (FINAL YEAR)** | CPI: 9.16/10.0 (TOP 10%)  
Some Core Coursework: Partial Differential Equations, Information Theory, Pattern Recognition, Compiler Design, Theory of Computation, Operations Research, Computer Networks, Databases, Operating Systems, Computer Architecture, Algorithms and Data Structures, Discrete Structures, Applied Mathematics

## SDE INTERNSHIP AT CODENATION LLP

### RESEARCH PROJECT: ENTERPRISE APPLICATION INTEGRATION

May-Jul, 2019 | Bangalore

- Worked in a group of 3 to design and prototype an integration library from scratch, in Ballerina (language).
- Research phase yielded a design that would automate integration of hundreds of endpoints using a few function calls
- Used an event streaming Kafka/Amazon-Kinesis backbone which is subscribed and published to by the micro-services automatically spawned by the library functions on high level specification. These microservices can also connect to existing ESB integrations.

## PUBLICATIONS AND BLOGS

- **Sharan Gopal\***, Rishabh Mathur\*, Shaunak Deshwal\*, Anil Singh Parihar. "Learning Summarised Messaging through Mediated Differentiable Inter-Agent Learning" Accepted to the European Conference on Multi-Agent Systems (**EUMAS 2020**)  
Investigated a Messaging architecture where messages are passed from each agent to a central network that summarizes and broadcasts, and does not directly take part in the task. Also analysed the contents of the broadcasted messages.
- A Tutorial on Neural ODEs | [Link](#)
- Short Medium writeup on Differentiable Inter-Agent Learning | [Link](#)

## PROJECTS

- Asynchronous Advantage Actor Critic (A3C) for any environment | [Link](#)  
An implementation of the A3C algorithm, with updates to the network parameters done by multiple threads running training episodes in parallel.
- Pluggable implementation of DDPG | [Link](#)  
Custom models can be given for the policy and value inference, any environment (gym), along with custom processes that are to be triggered after each episode, any optimizer, replay memory objects (where sampling and insertion can be custom defined)
- Auto-differentiation engine for C++ (Under Development) | [Link](#)  
A flexible auto-differentiation library, written in C++, with an API that can be used to compute gradients for simple expressions as well as huge, complicated neural networks.