

# Anuran Roy

anuranroy02@gmail.com | +919734536286 | Portfolio: <https://linktr.ee/anuranroy>

LinkedIn: <https://www.linkedin.com/in/anuran-roy/> | Github: <https://github.com/anuran-roy/>

## Skills

**Backend Development** (Django, Django REST Framework, FastAPI, Starlite, ExpressJS (learning), Golang (learning), MongoDB, SQLite, PostgreSQL, Oracle SQL (learning) Spring Boot (learning), Spring MVC (learning))

**Programming** (Python, C/C++, Java (learning), Shell Scripting, R, JavaScript, TypeScript, Go(learning), Julia (learning), Rust(learning), Elixir (learning).)

**Data Science and Visualization** (Jupyter, Pandas, Numpy, Matplotlib, Plotly, Seaborn, Scipy, R, Ggplot, Dash (learning), Plots.jl)

**Machine/Deep Learning** (scikit-learn, PyTorch, Keras, skorch, PyTorch Lightning (learning), fastai (learning), Flux.jl (learning))

**Business Analytics/BI** (PowerBI (learning)) | **Cloud Services** (Heroku, Glitch, Replit, AWS (learning), GCP (learning))

**Data Engineering** (Spark (learning), Hadoop (learning)) | **Data Structures and Algorithms** (2\* Codechef, Pupil in CodeForces))

## Projects

**SerPyTor (under development),** 09/2022  
A low-code data tool (library-cum-framework) for data folks. [↗](#)

**FOSSFolio (under development),** 06/2022  
A blazingly fast, super flexible and 100% hackable static site generator in Pure Python [↗](#)  
• 23 stars, Listed on the Official JAMstack website under the **Static Site Generators** section

**PortSploit (under development),** Supercharging nmap for Python with 5+ features. 03/2022

**Pymetrix (previously Analyx),** 11/2021  
An Open Source Plug-n-Play Analytics Python Library with 10+ Github stars [↗](#)

**CLI Assistant,** to edit spreadsheets using either Google or Vosk Speech2Text. 11/2021  
**Corresponding blog post** [↗](#) **ranked #1 on page 1 of Google** [↗](#)

**Im2SQL,** Image to SQL Converter [↗](#) 10/2021

**Campus Saathi,** Student-management interaction forum with 10+ features to address issues in campus administration. [↗](#) 09/2021

**Alucard.ai,** CLI Desktop Assistant harnessing the power of 5+ different platforms and serving as a cross-platform bridge on top of base Python. [↗](#) 08/2021

**OpnEco,** 07/2021  
Content writing suite for writers with 3 modules (Trending on Product Hunt on Jul 28 2021) [↗](#)

**Sentiment Analyzer,** Throw in a sentence, get a sentiment! [↗](#) 12/2022 – 12/2022

## Achievements

**OpnEco ranked on ProductHunt trending #28, Vosk Blog ranked on at #1 on Google Page 1, 100+ GitHub Stars across repositories, Finalist- Hack-n-Pitch** (E-Summit 2021, E-Cell JU)

## Experience

**Machine Learning Engineering Intern, CloudSEK** [↗](#) 09/2022 – 12/2022 | Remote, India

- Interning in the **Digital Risk Protection** (DRP) department, on the Fake Domain Finder product.
- Created and augmented a dataset for webpage elements, later used by the entire DRP Team.
- Developed an AI model to detect client logos from webpage screenshots, based on state-of-the-art YOLOv7. Improved performance by more than 80% speedup with equal or better inferences than the pre-existing model (results taken from testing phase).
- Worked on a gator model to filter out domain sales pages to speedup the inference pipeline by eliminating false positives by more than 20% (results taken from testing phase).
- Dockerized the said model for testing by the DRP QA team.

**Deep Learning Research Mentee, Google DeepMind** 06/2022 – present | Remote

- Selected as a mentee under a team of 3 researchers from Google Deepmind, North Carolina State University, and Carnegie Mellon University.
- Researching on **10+** activation functions and their limitations in usecases of Neural Networks.
- Exploring and working on **2** novel activation functions that can overcome limitations of those currently in use.
- Running **5+** tests on the usecases and obtaining performance metrics for the same using **sklearn, PyTorch** and **Flux.jl**.

**Backend Development Intern, AI4Bharat** [↗](#) 06/2022 – 09/2022 | Remote, India

- Improved documentation of **10+** backend APIs by tracing them and working with the team on the same.
- Overhauled the quick search functionality by paginating queries and creating **2** advanced query lookups, using **Django, Django Rest Framework** and **PostgreSQL**.
- Conceived the unified search functionality in the Shoonya Ecosystem, that can scale upto a search space of size approximately **1,000,000,000** using **Django, Django Rest Framework** and **PostgreSQL**.
- Performed more than 20 tests, both manual and automated. Found more than 5 bugs using **Pytest**.
- Helped to setup of the CI/CD pipeline of Shoonya Backend with Github actions.
- Worked from prototype to market stage of Shoonya ecosystem, for data processing for NLP models in Indian Languages.
- Created a DSL for search filters to filter results with fine-grained control.

**GDC Fellow 2022, Global Digital Corps (with Pupilfirst)** [↗](#) 01/2022 – 05/2022 | Remote, India

- One of the 40 candidates out of 48000+ applicants to get trained in Software Engineering (**JavaScript, Django, Django Rest Framework** and **TypeScript React**).
- One of the 20 to complete training successfully.

<b>AWS Machine Learning Scholarship Program, Udacity</b>	06/2021 – 10/2021   Remote
<ul style="list-style-type: none"> <li>Completed the 3 courses allotted- Deep Learning with PyTorch, Software Design and Development, and Machine Learning on AWS.</li> </ul>	
<b>GRIP Intern (Data Science and Business Analytics), The Sparks Foundation</b> <a href="#">↗</a>	07/2021 – 09/2021   Remote, Singapore
<ul style="list-style-type: none"> <li>Completed the 3 tasks allotted - data wrangling (Pandas), data visualization (seaborn), regression modelling (sklearn), dashboarding (Dash).</li> </ul>	
<b>Content Development Volunteer, Pycon India 2021</b>	04/2021 – 09/2021   Remote
<ul style="list-style-type: none"> <li>Reviewed 5+ articles for the PyCon India 2021 Blog., and contributed directly to an article that underwent stringent quality testing.</li> </ul>	
<b>Software Engineering Intern, Pupilfirst</b>	05/2022 – 11/2022   Remote, India
<ul style="list-style-type: none"> <li>Contributing to 3 Open Source Repositories: <a href="#">coronasafe/care_fe</a> <a href="#">↗</a>, <a href="#">coronasafe/care</a> <a href="#">↗</a>, <a href="#">coronasafe/lobedicu</a> <a href="#">↗</a>.</li> </ul>	
<b>Contract developer (Freelance), Haplet</b>	06/2022 – 09/2022   Remote
<ul style="list-style-type: none"> <li>Developed the FastAPI backend with <b>20+ endpoints</b> for an MVP of a product (stealth).</li> <li>Integrated the backend with a custom-trained model based on YOLOv5 algorithm, to extract data from official documents using text and image detection.</li> <li>Created endpoints to mint the extracted data as NFTs by making API calls.</li> <li>Created the design document for the same.</li> </ul>	
<b>Open Source Contributor, Ivy - Unify all ML frameworks</b> <a href="#">↗</a>	06/2022 – present   Remote
<ul style="list-style-type: none"> <li>Created 5+ issues in the Github repository</li> </ul>	
<b>Open Source Contributor, OWASP</b>	03/2021 – 05/2021
<ul style="list-style-type: none"> <li>Contributed to the OWASP Maryam repository</li> </ul>	
<b>Contract Developer, AuthBase</b> <a href="#">↗</a>	02/2023 – present   Remote, India
<ul style="list-style-type: none"> <li>Developing a prototype for a product.</li> <li>Created Telegram, WhatsApp Business and WhatsApp Web Automation using Selenium, Python and JavaScript.</li> <li>Automated Web Scraping using Python and Selenium for API Keys in different AI Platforms like DreamStudio and OpenAI.</li> <li>Created and containerized backends for orchestrating bots, scrapers, and user requests and response</li> </ul>	

## Education

<b>B.Tech, CSE with specialization in IoT, Vellore Institute of Technology, Vellore</b>	2020 – 2024   Vellore, India
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## Courses

<b>Data Structures and Algorithms, Vellore Institute of Technology</b>	01/2022 – present   Vellore, India
<b>Natural Language Processing, Vellore Institute of Technology</b>	08/2021 – 01/2022   Vellore, India
<ul style="list-style-type: none"> <li>Developed an NLP Project in Python to recognize voice commands to edit spreadsheets data. Source Code <a href="#">↗</a></li> <li>Project Marks received: 95/100</li> </ul>	
<b>Data Visualization, Vellore Institute of Technology</b>	08/2021 – 01/2022   Vellore, India
<ul style="list-style-type: none"> <li>Analyzed the Global Terrorism Index for extracting insights.</li> <li>Project Marks received: 82/100</li> </ul>	
<b>Object Oriented Programming with C++, Vellore Institute of Technology</b>	02/2021 – 08/2021   Vellore, India
<ul style="list-style-type: none"> <li>Implemented a crude, barebones blockchain in C++. Source code <a href="#">↗</a></li> <li>Grade: 'A', Score: 83/100</li> </ul>	
<b>Problem Solving and Programming with Python, Vellore Institute of Technology</b>	11/2020 – 02/2021   Vellore, India
<ul style="list-style-type: none"> <li>Grade: 'S', Score: 93/100</li> </ul>	
<b>Neural Networks and Deep Learning, DeepLearning.ai</b>	08/2022 – 09/2022
<b>Principles of Database Management Systems, Vellore Institute of Technology</b>	07/2021 – 12/2021   Vellore, India
<b>Principles of Cloud Computing, Vellore Institute of Technology</b>	07/2022 – 12/2022   Vellore, India
<ul style="list-style-type: none"> <li>Grade 'A'</li> </ul>	

## Certificates

**Python (Basic)** [↗](#) (HackerRank), **SQL (Basic)** [↗](#) (HackerRank), **Python Proficiency Test** [↗](#) (Pluralsight), **Data Visualization** [↗](#) (Kaggle), **Data Science with R Programming** [↗](#) (Simplilearn), **Introduction to Machine Learning** [↗](#) (Kaggle), **Hypothesis Testing** [↗](#) (UpGrad), **Introduction to Julia (for programmers)** [↗](#), **Neural Networks and Deep Learning** [↗](#) (Coursera - DeepLearning.ai)

## Publications

<b>Oscillating activation functions and other recent progress in activation functions: A survey, engrXiv</b> <a href="#">↗</a>	13/06/2022
<ul style="list-style-type: none"> <li>Modern neural networks have their fundamental component in the perceptron.</li> <li>A perceptron can represent the basic logic gates, except the XOR gate, popularly referred to as the XOR problem.</li> <li>Recent work have proposed biologically inspired oscillatory functions that solve the XOR problem with a single perceptron.</li> <li>We highlight the shortcomings of existing activation functions with respect to the XOR problem and how oscillating functions can solve them in this paper.</li> </ul>	
<b>The Net Disconnect: A Statistical Study on Internet Shutdowns in India, Centre for National Policy Research</b> <a href="#">↗</a>	07/2021
<ul style="list-style-type: none"> <li>Studied the scenario of internet shutdowns in India.</li> <li>Statistically visualized the impact of shutdowns on the GDP of India.</li> <li>Proposed a rough framework of solutions for tackling internet shutdowns.</li> </ul>	