# Aitik Gupta

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## EDUCATION

**Indian Institute of Information Technology, Gwalior**                Madhya Pradesh, India
*Integrated Bachelors and Masters in Information Technology (CGPA: 7.5)*        *July 2018 – Expected May 2023*

**St. Xavier's Sr. Secondary School**                New Delhi, India
*Central Board of Secondary Education (10th and 12th)*        *August 2004 – May 2018*

**Explorer Fellowship at Major League Hacking**                Remote
*Collaborated with Fellows all around the world over 3 hackathon sprints.*        *February 2021 – April 2021*
1. SocioMark ⎘ - A FARM stack social media platform assuring data authenticity using steganography
2. PoseRunner ⎘ - Endless 3D runner game built with Three.js, integrated with PoseNet
3. VSCode-GitHub-Projects ⎘ - An extension that brings GitHub's Projects into VSCode using GraphQL and Svelte
   ( more than [4.8K downloads](4.8K downloads) ⎘ )

## EXPERIENCE

**Google Summer of Code**                Remote
*NumFOCUS, sub-org: Matplotlib* | *[Proposal](Proposal)* ⎘ | *[Blogs](Blogs)* ⎘        *June 2021 – August 2021*
- Revisited library's core module to migrate from <u>font-first</u> to <u>text-first</u> approach, virtually affecting 100% userbase
- Devised a per-glyph <u>Font-Fallback</u> algorithm, allowing text renderer to parse further families until a glyph is found
- Handled <u>Font-Subsetting</u> (valuable for CJK & commercial fonts) and unified most backends' <u>TeX exporting</u> layout

**Machine Learning Intern**                Remote
*RapidQuest Solutions (previously Code Heroku)*        *July 2020 – December 2020*
- Improved <u>HPE workflow</u> by 75% with HRNet - by avidly exploring researches and bringing them into production
- Improved and integrated native <u>cross-platform C++</u> codebase with <u>Android JNI</u> wrappers, processing with <u>TFLite</u>
- Built a utility to improve patients' journey for clients based in United States, to animate 3D characters and their <u>armatures</u> using their body movements, also removing redundancy in angle measurements by 80%

## TECHNICAL SKILLS

**Languages**: Python · JavaScript · C++
**Developer Tools**: Linux · Git · GitHub · pip · npm · VSCode · Anaconda · Jekyll
**Frameworks** | **Libraries**: Flask · FastAPI · GraphQL · MongoDB · ReactJS · Node.js | TFLite · Tailwind CSS
**Domain Knowledge**: Backend Engineering · Machine Learning · Computer Vision

## PROJECTS

**SocioMark** ⎘ | *FastAPI, ReactJS, MongoDB, OpenCV*        *April 2021*
- Devised the <u>steganography module</u> which embeds/decodes user_id (SHA) inside an image in the form of 256-bit binary digits, also implementing the logic behind when to <u>encode/decode</u>
- Defined and developed the <u>backend endpoints</u>, their routes, model architectures and <u>database schema</u> in FastAPI
- <u>Continuously</u> deployed the [server](server) ⎘ (Heroku) and [client](client) ⎘ (Netlify) with linter checks for every PR via <u>GH-Actions</u>

**swi-ml** ⎘ | *Python Library, NumPy, CuPy, Matplotlib*        *February 2021*
- Authored a lightweight Python library ([PyPI link](PyPI link) ⎘ ), implementing a subset of machine learning algorithms written <u>from scratch</u> - with a runtime <u>switchable backend</u>
- Interfaces single-core <u>CPU</u> accelerated backend as well as <u>CUDA</u> accelerated backend on multitude cores of GPU
- Pursued <u>test-driven</u> development to write <u>object-oriented</u> and clean modular code along with <u>unit tests</u>

**E-RotaNet** ⎘ | *Python, TensorFlow, Flask, Computer Vision, Documentation*        *July 2020*
- Developed a modular end-to-end library to rotate images as per human-perception via <u>regression/classification</u>
- Used EfficientNet backbone with an <u>iterative training strategy</u> and a custom loss function, deployed using Flask
- Resulted in an 80% more lightweight, and 5X more accurate model than previous research in the domain

## PUBLICATIONS

**ActiveNet: A computer-vision based approach to determine lethargy** ⎘        Aitik G., Aadit A.
*ACM India Joint International Conference on Data Science and Management of Data*        *January 2021*