Abhijeet Manhas

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EDUCATION

- **Indian Institute of Technology Mandi** — Mandi, India
  B.Tech in Computer Science Engineering; CGPA: 8.41 — *July 2018 – Present*
  - **Relevant coursework**: Data Structures and Algorithms, Computing and Data Science, Data Science II, Data Science III, Applied Databases Practicum, Information and Database Systems, Linear Algebra.
  - **Positions of Responsibility**: Coordinator of Space Technology and Astronomy Cell, IIT Mandi for academic year 2019-20. Volunteered as Publicity head of AstraX 2020 (annual inter-college Astro-meet).

EXPERIENCE

- **Google Summer of Code Developer** — SunPy, OpenAstronomy
  Metadata Searches using Fido — *May 2020 - Present*
  - **Working with SOAP and Web-Scrapers**: Created methods to retrieve more details from XML responses received from querying Virtual Solar Observatory using Zeep Client. Build scrapers to support various archives for searching and fetching solar physics data in SunPy (python library for solar physics).
  - **Making Interface for querying DBMS Services**: Added flexibility in Federated Internet Data Obtainer(Fido) to perform metadata only searches to web-services like Helio Event Knowledgebase(HEK) and JSOC database. Worked with astropy tables and hashing of response objects to ease data inspection and post-search filtering.

PROJECTS

- **HeyDoc App Ecosystem**: Developed a Mobile(iOS and android) app which allows users to search doctors, book appointments, and get prescription notifications. It also includes DoctorDash - a web-app connected with HeyDoc through which doctors can register their clinics and manage bookings. Used flutter and Cloud Firestore.
- **WildfirePy - Deputy Lead Developer**: Co-author of an open-source python library for Geographic Information Systems (GIS) Data analysis for detecting wildfires. Worked on package's test suite, managing pip releases, and writing IO module for NASA EarthData files.
- **Deep Generative Modelling for lensed Dark Matter**: Used Generative Adversarial Neural Networks and Auto-Encoders to learn representation of dark matter images under strong gravitational lensing. Quantified the losses to compare DCGAN, AnoGAN and GANomaly for anomaly detection.
- **Gymkhana Activities Calendar Web-App**: Made a Django based event-scheduler application deployed on nignx that is used by institute's societies/clubs to book slots for their activities to avoid clashes.
- **Gravis3D - Pseudo-Simulation of n-bodies under gravity**: Allows to simulate Newtonian gravity model on real mass bodies on browser in 3D. Developed using astropy quantities and vpython.
- **Book Reviewer Android-App**: An app through which book details like availability and reviews are fetched from various online stores by scanning its front page. Used OCR for text detection and jsoup for web-scraping.
- **Astro-Docker**: A tool that can dockerize any python package in dev or stable mode using one command.

SKILLS AND INTERESTS

- **Languages**: Python, Dart, C++, C, PHP, JavaScript.
- **Tools**: flutter, TensorFlow, Django, git, docker, VSCode, AstroPy, Matplotlib, Pandas, sklearn, keras, openCV.
- **General**: Backend Development, Deep Learning, Android Development, Astronomy, Data Science, Web scraping.

ACHIEVEMENTS, AWARDS AND EXTRA-CURRICULARS

- **Inter IIT Tech Meet 2019**: Won bronze medal among all IITs in a Data Science challenge organized by bitgrit Inc. involving NLP and Time Series Forecasting.
- **Hon'ble Prime Minister Box Invitee, Republic Day Parade 2017**: Invited to PM Box to witness RD parade among 100 meritorious students pan India for extraordinary performance in CBSE AISSE, 2016.
- **Indian National Mathematics Olympiad 2017**: Received INMO merit certificate given to 50 high school students each year all across India issued by Homi Bhabha Centre For Science Education, TIFR.
- **Wolfram One Award Winner, TopCoder Hackathon IIT Mandi**: Made a web-app using NodeJS which shows the availability of medicine in local stores using the Google Maps API. Used MongoDB for dummy database.
- **Enigma , AstraX 2019**: Runners up in a 5-hour inter-college Computational Astrophysics Hackathon.